THE GENESEE FARMER

Vol. XIII. ROCHESTER, N. Y., FEBRUARY, 1852. No. II.

AGRICULTURAL CHEMISTRY.

NUMBER II.

In the January number of the present volume we offered a few remarks on what was termed "an ever-active force in all matter, which tends to the formation of compound bodies." This force was also spoken of as some times "quiescent;" and the question naturally arises in the mind of the reader, how a power which is *ever*-active can be occasionally quiescent or inactive. This seeming contradiction is explained by stating that a chemical force is ever-active toward some bodies, while it is quiescent toward others. Thus, when iron and oxygen unite and form what is called the prot-oxide of that metal, the force or affinity that keeps these two elements together as a compound body, is ever-active; but in reference to most other bodies this force is entirely quiescent. If, however, a little vinegar be poured upon a simple compound of iron and oxygen, the acid and oxydized metal immediately form a chemical union, producing a salt called acetate of iron. In this phenomenon, it is known that the vinegar and the oxide of iron were each compound bodies, whose natural forces were active and brought them into a state of permanent union, so far as any chemical union can be permanent.

In the language of chemistry, all minerals that combine with acids are called *bases;* and different acids and bases, and other substances, have unequal affinities, which give rise to all the diversities that are found in the mineral, vegetable, and animal kingdoms. If each element in the material world were attracted equally toward all others, in a chemical sense, all bodies would be compounded alike, without the least variety in nature; and life would be impossible as we now see it, and all matter would be a perfect chaos again. To bring order and harmony out of confusion, it is safe to say that immutable laws to govern all possible changes in matter, are indispensable. The most superficial observation enables us too see the workings of these laws; and to no other class is their study more important than to the cultivators of the earth. In its application to tillage and husbandry, chemistry is so vast a subject that we hardly know how to give it a proper introduction to the reader. As we understand it, it is truly a revelation not only of the workmanship, but of the will of the Creator. The laws that govern the universe, and all its atoms, are his laws. To present rural science as illustrated by nature, in any other light, would do injustice alike to the Law-giver and the law-breakers. Man's very existence depends on physical laws, and these can not be separated from his duties, or moral obligations. Chemistry and religion are as close together as the world and its maker; or as the body of man and his reason and conscience. To impoverish the natural fruitfulness of the earth is to do mankind a great injury, without any excuse whatever. To avoid committing this wrong, a knowledge of the laws of Providence is indispensable. Ignorance of divine laws (and all chemical or

natural laws are divine in their origin,) may be a crime, and is generally a fault. Infinite Wisdom is not the friend of ignorance, but of knowledge; and the clergymen and pious persons who do not exert themselves to promote the universal study of chemistry and other branches of natural science, fall far short in their duty. Why continue a deep shade between the human soul and its God? Physical man must look through nature to see the Divinity beyond; and no one can diligently study natural phenomena, as the shepherds of old watched the constellations at night, and not become less an animal, and more a Man.

The extreme *divisibility* and perfect *solubility* of matter prepare and adapt it to the uses of the scientific husbandman in feeding his growing crops and growing animals. There are a thousand ways in which the extreme divisibility of solid matter may be demonstrated. If a particle of silver only the one-hundredth part of a line, or the twelve-hundredth part of an inch in extent, be dissolved in nitric acid, it will render distinctly milky 500 cubic inches of a clear solution of common salt. Hence the magnitude of each atom of silver can not exceed, but must fall far short of a billionth of a cubic line. To render the idea of this degree of division more distinct, says Sir ROBERT KANE, "it may be stated that, a man to reckon with a watch, counting day and night, a single billion of seconds, would require 31,675 years." In the organized kingdoms of nature even this excessive tenuity is far surpassed. An Irish girl has spun linen yarn so fine that a pound was 1432 miles in length, and of which, consequently, 17 lbs. 13 oz. would girt the globe. A distinctly visible portion of this thread could not have weighed more than the one hundred and twenty-seven-millionth of a grain; and yet each thread contained many fibres of flax, and each fibre was a mass of many cells, and each cell was composed of several distinct elementary bodies, such as carbon, oxygen, hydrogen, and the incombustible minerals which appear as *ashes* when flax is burnt. Microscopes have revealed organized creatures so small that it is said a million of them in one mass presents an object too small to be seen by the naked eye! Although we question the entire accuracy of this statement, yet, that animalculæ have a perfect organization, and their circulation of blood and its particles are as complex as those of the elephant, there can be no reasonable doubt. We should never forget that both the astronomer and the microscopist are indebted to art and science for the optical instruments that reveal planets and suns in the far off regions of the heavens, and living things in air and water, and their remains in rocks and mountains, before unknown. The divisibility of matter and its plasticity being comprehended, we are prepared to consider its solubility in water.

The laws which govern the solution of solids are not sufficiently known to admit of generalization. They are, however, resorted to in chemical researches and analyses, with eminent success. As was stated in the January number, the pulverization, or comminution of solids invariably promotes their solution in water; but why chalk will not dissolve, and why the muriate of lime will, are alike unknown. A critical knowledge of the relative solubility of different substances is exceedingly valuable to the chemist; nay, without this information, he can not be regarded as worthy of the title of chemist. Water is only one of many liquids used to dissolve both simple and compound bodies; acids, fused alkalies, ether, alcohol, and oils, are among the more common solvents, which are often aided by heat in the laboratory. Water, however, is now regarded as an universal solvent — dissolving all minerals when finely divided. Decaying vegetable and animal substances on the surface of the ground, yield carbonic acid and others to water, which greatly augments its solvent powers. It is sometimes charged with mineral acids, especially sulphuric, or the oil of vitriol. This acid is formed by the decomposition of iron pyrites, which is a compound of sulphur and iron. In this process the oxygen of the air or in water combines chemically with sulphur in the proportion of 24 parts of oxygen to 16 of sulphur. There are springs in Monroe county, N. Y., which contain sulphuric acid enough to render the water quite sour. Water charged with this

acid, no matter from what source, coming in contact with lime either in soils or rocks, produces gypsum. In some localities, crystalized plaster is formed so rapidly in the manner indicated, as to throw down, like frost, stone walls, and crack the walls of brick and stone buildings. When this phenomenon was first observed, much speculation was had "on the growing of beds of gypsum." Plaster can grow in soils and beds so long as lime and sulphur last, but no longer. Lime and sulphur are indispensable elements in all soils, and every farmer should be able to determine by the use of the appropriate tests, the existence of gypsum or lime in the land he occupies, whether in meadow, pasturage, or tillage. This information we shall give in the present volume, when we come to describe the analysis of soils. To the million, a knowledge of chemical principles is more important than any description of analytical manipulations, which not one in a thousand will ever practice. But many operations in the laboratory are so simple that any farmer may perform them with success, after a little study. If students in academies and advanced classes in public and private schools, were instructed in the uses of filters and solvents, to separate dissolved from undissolved substances, and in the application of reagents as tests in agricultural researches, an important step would be taken in the right direction. Because a youth can not reach the highest eminence in a science, there is neither sound sense nor decent logic in the inference, that he should make no effort to learn what he can of said science. Facts are the basis of all knowledge, and the habit of ascertaining and recording facts in rural affairs, both in practice and theory, should be encouraged from boyhood to old age. Apply the inductive system of reasoning and research to agriculture, and the tens of thousands of able men engaged in it will rapidly expose and correct the errors of the past, and enlarge the bounds of what is already known in tillage and husbandry.

Specific gravity are words used in chemistry to denote the relative weight of any given volume of a solid, liquid, or gaseous body. In all weights and measures, something is arbitrarily assumed as a *standard* with which other things are to be measured or weighed. Pure water, when the thermometer is at 32 deg., or at the freezing point, and the barometer at 30, furnishes a standard much used by chemists. Thus, a bottle that will hold an ounce (480 grains) of distilled water, will contain only 343 grains of sulphuric ether, which is much lighter than water. It will, however, hold 885 grains of oil of vitriol, or sulphuric acid. If we make water a unit, and place it at 1000, the specific gravities of ether and sulphuric acid will stand thus:

	Grains.	*Sp. Gravity.*
Water,	480	1000
Ether,	343	715
Sulphuric acid,	885	1845

To save the trouble of calculation, the bottle in use is generally made to hold 1000 grains of pure water, and then filling it with the fluid to be tried, the weight gives directly the specific gravity. By means of a light but more capacious glass globe, the comparative weight of gases is ascertained. A gas must be either perfectly dry, or saturated with moisture. Assume that the globe contains 28 cubic inches, and when filled with dry common air of a known temperature, (32 deg.,) weighed 656 grains. With the air removed, it might weigh 647.5 grains, showing a loss of 8.5 grains. Filled with dry carbonic acid at the same temperature, it would weigh 660.3. If we subtract the weight of the globe (647.5 grains) from the same filled with carbonic acid gas, the difference is 12.8, while that of common air is 8.5. Call the latter 1.000, and the specific gravity of carbonic acid gas is 1.506. Variations in temperature and barometric pressure change the relations of gases very materially.

How to determine the specific gravity of soils and other solids, will be explained in our next.

"THE LIMITED DURATION OF VARIETIES OF PLANTS."

Since our article on this subject was written, the Horticulturist contains another from Mr. Townley, which the editor of that journal pronounces, not unjustly, "one of the most interesting it has published." We have read the facts and argument of Mr. T. with close attention, and see no reason to alter the judgment we ventured to express in our last. The question is not whether seedlings, and plants, and trees, propagated by buds, will deteriorate, for it is generally conceded that both will, but whether a healthy bud from an aged tree, having equal advantages of soil and climate, may not live as long and do as well as *a new tree*, as one grown from a seed from the tree that produced the bud? Here is an apple tree, itself a seedling, which is one hundred years old; and the question to be decided is, what advantages for the production of a new tree have its seed over its buds? If the vital principle in its buds is feeble from great age, or a want of food, the same is true of its seeds. In cellular structure they are alike; and they are alike in composition and function after taking root in the ground.

How does it happen that seedling potatoes are subject to the rot as well as those grown from tubers, if the effect is confined to the propagation from tubers instead of seeds? We found it impossible to answer this question to our own satisfaction, and hence we doubted the soundness of the "bud theory" altogether. Seedling onions, carrots, and cabbages, often rot prematurely, especially so far south as Georgia. Indeed, they appear to decay there sooner than potatoes, even before carrots and onions are pulled. Had the plants produced from seeds, in starting new races of potatoes, been entirely exempt from the malady, while those cultivated from tubers were subject to it, such evidence would have gone far to show that nature had imparted less vital force to buds than to seeds. But, let seedlings be as long abused, in one form and another, as the tubers of potatoes and other plants have been, and also all fruits propagated by buds, and the seedlings so treated would show equal deterioration and proneness to early dissolution. It is better to have no theory at all on the subject of budded and seedling fruit trees, and esculent tubers, than one which, if not evidently erroneous, is more than doubtful. To improve all organic structures, all vital parts, one needs a knowledge of chemistry, anatomy, and physiology, in their application to the living beings whose constitutional vigor and enduring powers are to be changed for the better. Without considerable knowledge of the principles of organic chemistry, one cannot duly understand the relations that earth, air, and water, bear to cultivated plants, fruits, and animals; and without some acquaintance with their anatomy, some information in reference to the functions of their numerous organs, or their physiology, he cannot operate otherwise than in the dark in feeding his crops, his stock, and in improving his land. A man may produce, after a fashion, the flesh, bones, and feathers, of one hundred fowls or turkeys in a yard, without the remotest idea of the elements which nature demands and consumes in their healthy growth. Empiricism or accident may have given him valuable information on the subject; but where we meet with one person who really understands the art and science of manufacturing eggs and poultry in the most economical manner, we find ninety-nine who have the trade to learn. So it is in fruit culture, grain culture, potato culture, and grass culture.

Never, until farmers are willing to study the laws of nature which govern the organization, and the extension from generation to generation, of the plants and animals which they labor to produce, can they make substantial progress in their profession. The intelligent reader knows how little has been done in the United States to foster the critical study of every department of agriculture and horticulture. We depend on Louden, Knight, Lindley, Liebig, Johnston, Boussingault, and other Europeans, for nearly all our knowledge of rural science. Cannot original researches be made under a republican government as well as under monarchies?

CULTURE OF FLAX.

MAN of all animals is the only one who requires and is able to provide himself with clothing; and it is in direct proportion to his advancement in civilization and the arts, that he clothes himself with garments agreeable to the feelings and pleasant to the sight. The animal and the vegetable kingdoms furnish him with the raw material from which he makes his beautiful fabrics — the former supplying him with wool and silk, and the latter with cotton and flax. We propose to confine our attention at this time to the last.

Flax is supposed to have been brought originally from the alluvial soils of Egypt formed by the overflowing of the Nile, where from remote antiquity it has been cultivated, spun, and woven. Egyptian mummies embalmed 1200 years B. C. are found wrapped in swaddling clothes of fine *linen*. Its introduction from this warm to the colder climates, has materially improved the fibre and rendered it fitter for the manufacture of articles of fine texture. A cool, moist, and equitable temperature is best adapted to its growth, though it is grown at present to a greater or less extent in all the northern countries of Europe, in Italy, Sicily, Egypt, and to a considerable extent in Ireland and England, where great efforts have latterly been made by government to extend its culture so that it may afford employment for its superabundant labor. The amount now raised in Ireland is estimated at 25,000 tons. The total amount of flax consumed in the British isles is about 100,000 tons per annum. Of this Russia furnishes about 70 per cent.; but it is chiefly of a coarse texture, selling for about $225 per ton, whereas Belgian is often sold from $500 to $700 per ton: it should therefore be the chief aim of the cultivator not so much to grow quantity but quality.

The soil best adapted for its growth, is a dry, deep loam, with a clay subsoil; and, as a general rule, all soils need under-draining for its profitable production. The preparation of the soil is of great importance. It should be quite free from weeds, and be finely pulverized to a considerable depth, as the fibrous roots of the flax plant, if they meet with no obstruction, often penetrate to a depth of thirty inches in a straight line. A good plan is to sow it after wheat. Directly after harvest, the wheat stubble should be dragged with a heavy harrow, which covers the small seeds, causing them to germinate. In about three weeks it should be well and deeply plowed: this will kill all the annuals that have germinated; but it should be dragged or cultivated at intervals in the fall, so as to destroy as many of the perennial roots as possible; and it would be advisable, as late in the fall as possible, if the weather be dry, to give it another deep plowing, so as to leave it *rough* for the winter. As soon as it is sufficiently dry in the spring, it should be dragged and rolled, and then immediately before sowing it should be again plowed, leaving the land as level as possible; a drag should precede the sower, and a light one with thick set teeth should be used to cover the seed.

The quantity of seed per acre is a matter of importance, depending on the condition of the soil and the object of the grower. If seed alone is the object, one bushel will be sufficient, as thin sowing causes the plant to throw out branches which bear abundance of seed, but the flax is of a very coarse, inferior kind. The richer the land the less seed is required, as the plant will branch more. But if *flax* is required, two and a half bushels (or 126 lbs.) is about the proper quantity. If the soil is rich, three bushels should be used; if poor, two bushels will be sufficient; the object being to prevent the plant from branching out and to obtain a tall and slender stem.

Great care should be taken to obtain *clean* seed. Choose that which is shining and slippery, not too plump, and of a brownish red color. It should be sown as early in April as the weather will permit; but it is better to wait till the soil is dry and warm, even if it should not be sown before the first of May.

The most critical time of the flax crop is before the plant has covered the ground —

dry weather and a hot sun often prove very injurious. The plant flowers about the middle of June, its delicate blue blossoms presenting a very beautiful appearance. Hail storms and heavy rains are now to be dreaded.

If the crop is grown entirely for the seed, it should be allowed to get fully ripe; but if flax is the object, experience proves that it should be cut or pulled before fully ripe; for although the seed will not be so full and plump, yet the increased fineness of the flax fully makes up for it. The Dutch method of ascertaining when it is ready to cut is as follows: "A full grown stem is selected, and the ripest capsule is cut horizontally with a sharp knife. If the interior of the seed pickles is found to be firm and of a dark green, the flax is considered fit for pulling."

In another number we propose a consideration of the best methods of preparing the flax for market, and also the most profitable way to dispose of the seed.

EXPERIENCE IN POTATO CULTURE.

BY A CORRESPONDENT AT JUNCTION, ILL.

By your leave I will give you a portion of my experience for the past season. On some high ground, level and rather worn, well manured and plowed the previous fall, and plowed again immediately before planting, I marked out a piece five rods square, and on the 23d of May planted it with potatoes, (Carters,) in drills about two feet nine inches apart; potatoes cut so as to leave two or three eyes in a piece and planted nine inches apart in the drills. The first three rows had unleached ashes put upon them at the rate of five or six quarts to the row. On the second three rows I put about the same quantity of air-slaked lime. The next three rows were salted, four quarts to a row. On the next three rows I put charcoal dust, six quarts to a row, and the balance of the piece was all ashed as the first three rows. Alongside this five rod square piece I planted in the same way, without ashes or any other application. When the potatoes were up six inches, I covered the first three rows with the scrapings of the barn-yard (all rotten manure) to the depth of about one inch; they were all treated alike in other respects. The result was, that the first three rows yielded four and a half bushels of sound potatoes; all the others, without material variation, yielded three bushels to each three rows; or about two hundred bushels to the acre for those not top-dressed, and three hundred bushels for the top-dressed rows—a gain of fifty per cent. to the latter. The potatoes were dug in the last week of October. Many *entirely rotten* ones were found—none *partially* decayed—no difference could be seen between those ashed and those not ashed. Not an unsound one in the lot at this date, (December 1st.)

I learn from the above that it will pay to top-dress potatoes—not much else.

I find that early planted potatoes in this county rotted as much as late planted ones; that potatoes shaded do not rot as much with some of our farmers as those not shaded; that Carter potatoes do not rot more than other potatoes, as I think I have the best crop in the county; that Mercer potatoes, early and late, were almost a total loss; and that even the Merinos did not escape the rot here this season.

BY JAMES B. SALLS, OF WEST POTSDAM, N. Y.

About the first of May I plowed a piece of green-sward, and on the 12th planted it with potatoes. On four rows I put in each hill a small handful of plaster; on four rows adjoining, and of the same length, I used no plaster. The difference during the season of growth was plain in favor of the plastered rows, and when dug they yielded six bushels; the rows not plastered, two and a half bushels. On the remainder of the piece I applied plaster to the hill at hoeing, and although an improvement, the result was not as favorable as when covered with the potatoes at the time of planting.

RURAL HOMES.

A SUBURBAN COTTAGE

In our January number we noticed a new book, entitled "Rural Homes," by GERVASE WHEELER, promising to give some extracts from the work in a future number. We are well pleased that works on rural architecture are multiplying, as this fact shows a demand for reading of this character. In every part of the country over which we have occasion to travel, we observe neat cottages, pretty "rural homes," springing up where but a few years ago nothing attractive in the form of a house could be seen. These may not all be designed in the most correct taste—some may exhibit redundancy of ornament, showing the want of such a work as Mr. WHEELER's,—but still they are generally pretty and tasteful. These cottage buildings add much to the beauty of the landscape. Without further remark we give the promised quotation, selecting one of the cheapest and most convenient of the cottage plans:

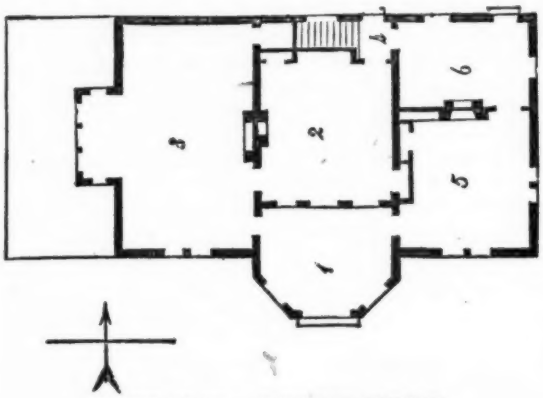
"A cottage home suited to the neighborhood of some small country town, and indicative of refinement and taste on the part of its occupants, may be made a very pleasing feature in the landscape. The illustration given here represents such a building, and I will proceed to describe it in detail, premising that its cost being but fourteen hundred dollars, it would be found within the means of most persons desiring such a house.

ELEVATION.—SUBURBAN COTTAGE.

"The character of the exterior is architectural, partaking something of the Rural Italian. Its low walls, overshadowing roof, wide veranda, and projecting ombra in its southern front, give it an appearance of symmetry and refinement that adapts it to the occupancy of a family of elegance and taste. The material of which it may be constructed may be stone, brick, or wood. If of stone, no change may be made in its form or the nature of its details, unless perhaps making them heavier, and their marked features still more bold. If of brick, I would merely add a projecting face, one brick wide and projecting two inches round all of the windows, and a band running horizontally below the brackets or cantilevers of the roof about a foot deep, upon which they may rest. If of wood, the covering should be clap-boarding or smooth ceiling, not battens and perpendicular planking, as the leading characteristics of the composition are horizontal lines, and would be contradicted by any other direction in the lines of the covering. The roof, of sufficiently steep a slope to carry off all water or snow, should be shingled, and the gable over the center of the southern front be made water-tight with metal strips in the valley formed by its intersection with the slope of the main roof. The chimnies, formed of brick, rise in simple form from the ridge, and as they have no portion of the roof or building higher than themselves, need not extend above the ridge more than sufficient to ensure good proportion of height to width.

"Before proceeding further with the exterior of the building, I will describe the plan.

"A peculiarity in this design is in the projecting half-octagon porch or ombra, which, from its position, serves the double purpose of a delightful and cool retreat, and that of an entrance-hall—it is marked on the plan, No. 1. In the winter, its sides might be filled with windows, and the opening in front with a glass door, thus making an enclosed vestibule or porch, and rendering the dining-room a very warm and comfortable apartment. From this porch are doors into the dining-room, No. 2; the parlor or library, No. 3; and the kitchen, No. 5; and according as a visitor's business in calling was to such and such a portion of the house, a door might be opened, thus saving the internal room necessary for a hall, and yet gaining all the advantages of such a portion of the building. The dining-room is a good-sized pleasant room, fifteen feet by seventeen, with French windows opening upon the ombra or porch at one end, and a recess for sideboard underneath the stairs at the other. Attached to this room are the necessary adjuncts of china, glass, and store closets, one by the sideboard, and the other in the side of the room opposite to the stove or fireplace. Back of the dining-room is a small vestibule, five feet square, enclosed so as to shut off the staircase, and being the passage way from the pantry, scullery, and kitchen, to the dining-room. This entry is marked in the plan, No. 4, and is provided with an outer door. The economy in space attained by the arrangement of this portion of the plan must be evident at a glance, and the domestic comfort and convenience ensured, seem to me to render it very desirable. No. 3 is a large, well-proportioned apartment, twenty-five by fifteen, exclusive of a large projecting window in the side of the room. This would serve as a parlor, drawing-room, or country library, as the taste of the occupants lead them to determine. The projecting window opens upon a large veranda extending along the side of the room, and from one side of this bay-window a portion of the veranda might, if thought pleasant, be enclosed, forming either a conservatory or a small summer study, attainable at very little additional cost. As this house might in many places be thought adapted for the dwelling of the clergyman of some small society, I would suggest that the room I have just described would very agreeably afford ample space for purposes of clerical use, and the small study thus attached (entered by a door from the side of the bay-window) might be provided with a flue in one of its sides, so as to be warmed by a stove in winter. Few houses of far greater pretension and expense have rooms so spacious and well-proportioned as those in this little cottage, and hence its desirableness for erection. No. 5 is a kitchen, back of which is a large scullery and wash-room, No. 6. Underneath the building, a dry and well lighted cellar (lighted from the one end and the rear side) might contain a store and flour-room, a larder, etc., with a flight of stairs leading thereto. Back of this building, I would propose an enclosed yard, containing wood-shed, and such offices as are better out of doors, and as the pleasant, occupied rooms are all on the other side of the house, the yard so enclosed might extend along its entire rear length, and being conveniently opened into by means of the enclosed vestibule at the foot of the stairs, would be easy of access from the living rooms. This enclosed yard would keep



GROUND PLAN.—SUBURBAN COTTAGE.

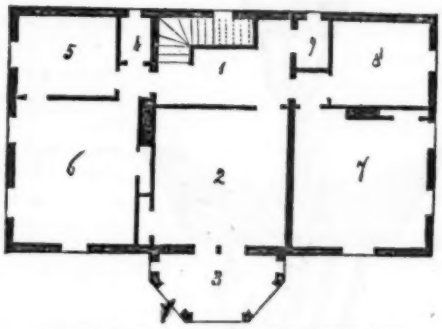
everything neat and orderly in appearance round the building, and give it a refined character in keeping with its more exposed exterior.

"The height of the rooms on this floor is ten feet in the clear, the walls to be prepared for paper, and the inside finish of doors and windows of the simplest, plainest description.

"The sleeping accommodation in the floor above is adequate to the comfortable use of a small family, and is arranged as follows:

"No. 1 is a hall, well-lighted and roomy, containing the staircase from below, and from which open the doors into the several chambers.

"No. 2 is a large room over the dining-room and extending clear to a line with the front of the house, the recessed portion below being floored over. From this room a window opens upon a large balcony, No. 3, over the truncated projection of the porch below. The room is provided with a large closet for clothes, and a flue for a stove or fireplace.



CHAMBER PLAN.—SUBURBAN COTTAGE.

"No. 4 is a large linen-closet, well-lighted, and formed by the small entry from the upper hall leading to rooms Nos. 5 and 6.

"No. 5 is a small chamber or dressing-room, in which might be a bathing apparatus, and serving either as a separate single room, a child's sleeping-room, or a dressing-room connected with the larger chamber, No. 6, which is over the library or parlor below, and is provided with a spacious clothes-closet and a flue for a stove or fire-place.

"No. 7 is over the kitchen, and has also a large closet and a fire-place, and No. 8 is a servants' sleeping-room. This room is shut off from the other chambers by an entry similar to that on the other side of the hall, and is sufficiently large for the purpose and is well-lighted and ventilated.

"No. 9 is a large store-room, well-lighted and airy—completing the accommodation provided on this floor, and the compactness and convenience of the plan must, I think, favorably recommend itself.

"The rooms on this floor extend partly into the roof. The walls are seven feet high to the under side of the plate, and the ceiling follows the slope of the roof sufficiently far to allow the rooms to be ten feet in the clear. The roof is so framed as to admit this, and by such an arrangement greater internal height and airiness are obtained, with more modest lowliness of the exterior. The sloping sides of the ceiling should be firred down so as to leave a space of dead air (the most perfect non-conductor) between the lathing and the covering of the roof; by this means the rooms will be always cool and the additional height gained be very valuable. The room over the dining-room having a gable over its ceiling would be a higher and more symmetrical apartment than the others, and hence might be reserved as the guest-chamber, its large balcony making it a very pleasant sitting place for ladies with their books or needle-work."

The author further remarks that the furniture and finish of such a house as this should be very simple. The tables and chairs of oak, maple, or birch; in the summer the floor should be covered with India matting, and in winter with carpeting of the pattern called mosaic, and the colors orange or crimson, and brown or black, except for the parlor, which should be a little more lively. The paper of oak pattern, or some other one-toned character.

"Around the bay or projecting window, a low chintz-covered seat, excepting where the windows open to the veranda floor, or the door (if there be one) leads into the study

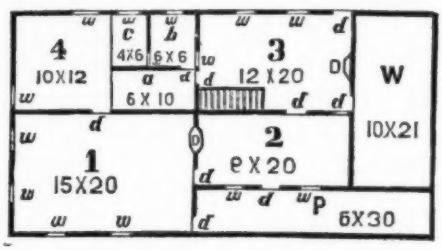
or conservatory, and as the space would be large, its center might prettily be occupied by a light and elegant work-table, or by a rustic flower-stand or jardiniere. The accompanving engraving shows a pretty rustic flower-stand just suited to such a situation, and as it is inexpensive and can easily be procured, I have given its representation. It is made of bark finished neatly and varnished.

RUSTIC FLOWER-STAND.

"The color of such a building should be light—whatever the general aspect and tone of coloring of the objects around, that let it be. If surrounded by trees, with a leafy background, its coloring should be warm and approach the cream; if standing more alone, with rocky foreground and bold crags near enough to be seen in outline and color, quench the warmth somewhat by deepening the cream to a light cool brown; if other buildings are near, and the background be circumscribed, give the building relief and its features distinctness by using more than one color thereon—covering the main block with a warm light tint and deepening the prominent portions, as window frames, cornices, brackets, doors, veranda posts, and ombra or porch.

"Sanding paint, or mixing sand therewith, besides assisting in its preservation, takes away from the oily glare and glisten of ordinary pigments, and by lessening the refracting power, gives to the surface of the building a softer and more pleasant tone of coloring. But I do not recommend this process in all cases, believing in no universal rule that admits not of exception; frequently where the detail is minute, the roughened appearance imparted by the use of sand gives a clumsy aspect to the part, and in all cases where sharpness of outline is sought to be obtained by any particular decoration of the construction, the use of sand would be perfectly inadmissable. By using the last coat of oil color thick and smooth, without boiled oil, or any fatty, or resinous substance, a flat, unshining surface may be obtained, more durable than a brighter, reflecting coat would be, and more pleasing in effect."

PLAN OF A FARM-HOUSE.—Observing that you devote a portion of your paper to this subject, I send you a plan of a house which will, I think, lessen the wants of a large number of the farming community. We are, at this age of improvement, rather selfish in regard to our pecuniary affairs, and it is a desire and an interest, and at times necessary, in erecting our farm buildings, to do it as cheap as possible. If you think the accompanying plan will be of use to any of your subscribers, it is at your disposal.



Description.—1, Parlor. 2, Dining room. 3, Kitchen. 4, Bed-room. W. Wood-house. P, Porch. *a*, Clothes-press. *b*, Pantry. *c*, Meal-room. *w*, Windows, *d*, Doors. D, D, Chimnies. S. A. T.—*Gorham, N. Y.*

BUTTER MAKING.

It is a very general opinion among dairywomen that more butter is obtained from a given quantity of milk when set in pans partly filled than when full. If this is true, it is well worth knowing; if not, a great deal of useless labor is expended. As the question has been often asked me, and I could give no answer, I determined to make the trial. As the result, so far as it proves anything, is of general interest, I send it for insertion in your paper. Such an experiment is valueless unless conducted with extreme care, and your readers might well doubt its accuracy unless shown that proper pains were taken. I will therefore give the particulars.

On the morning of the 20th November, the milk was strained all together into a tub. It was then dipped out into a pail holding five and a half quarts, which was filled carefully to the brim. Pains were taken that if any rich milk or cream had risen to the top, it should not be skimmed off, as it were, by dipping. The first pail full was turned into one pan, and the second into two, and so on alternately. There were eleven of the former and twenty-two of the latter. They were placed on the shelves of the milk-room alternately, lest the difference of position should affect the result. The milk stood till it thickened, which was about four days. The full pans thickened sooner than the other. As there was not quite enough cream of each kind for a suitable churning, and that not a particle be lost, considerable milk was taken off in skimming. The cream from the half filled pans was a *very little* warmer when put into the churn than the other. It could hardly be perceived in the cream, but it came sooner and was a *trifle* softer to work over. When weighed there was 6 lb. 7 oz. from the full pans, and 6 lbs. 2½ oz. from the pans half filled. This was an unexpected result, but I could conceive of no vitiating cause unless possibly the slight difference of temperature in the cream might affect it. The pans were of the usual size—the bottoms being about 11½ inches in diameter. The milk stood 2½ inches deep in the full pans. A pound of butter was obtained from 9⅝ quarts of milk.

To verify this experiment, or to detect mistakes, if any, I repeated it. On the mornings of the 29th and 30th of November, 210 qts. of milk were set with the same precautions as before—six quarts in the full pans and three in the others. This stood nearly a week before skimming. No difference of temperature could be perceived in the cream when put into the churn. If there was any difference in the butter, that from the full pans was a trifle softer than the other—the reverse of the former experiment. From the full pans there was obtained 12 lbs. 10 oz. of butter, and from the others 12 lbs. and nearly 1 oz. The difference in this case was about 4½ per cent., the same as in the former trial. The milk stood in the full pans 2.7 inches deep. A pound of butter was obtained from 8½ qts. It is all of three times as much work to skim the half filled pans as the others. The question then arose whether still larger dishes were not better. Another trial was made by setting 208 qts., with the same precautions as before, one-half in pans holding six quarts, and the other half in those holding twelve quarts. From the small pans was obtained 10 lbs. 15 oz., and from the larger ones 11 lbs. 3½ oz. The difference in this case, of 4½ oz., was about 2½ per cent. in favor of the large pans.

The reason that the full pans each time gave the most butter, I cannot give; but I think the result is owing to unequal evaporation. The amount of cream and skim-milk is much less than the new milk. The milk from one full pan and two half pans was measured, and that from the full pan was half a pint the most, or one-twenty-fourth of the whole. This is four and one-sixth per cent., about the same difference as in the butter. If this is not the reason, I can conceive of no other. L. N.—*Sherburne, N. Y.*

THE VALUE OF BARN-YARD MANURE.—It is now pretty generally admitted that the chief analytical criterion of the relative value of different kinds of manure is the amount of ammonia they contain. From several analyses by Messrs. LAWES & GILBERT, it appears that a "ton of rich box manure," or manure produced by fatting animals with rich food in boxes, contained 14½ cwt. of water and 5½ cwt. dry substance; the latter containing a large quantity of mineral matter, and nitrogen equal to 20 lbs. ammonia: while manure made by eating, treading, and wetting straw, and rotted to the same degree, contained the same amount of water with less than one-half the important minerals, and nitrogen equal to only 5 lbs. ammonia. Most farmers are apt to imagine that "a ton of manure is a ton of manure," irrespective of its origin; and think if they are about the same to the eye they will be the same to the plant: but it is not so. A ton of manure made by sheep eating clover hay, would be worth three tons of that made by eating straw; and a ton from the consumption of peas or oil-cake would be worth as much as eight tons of the straw-fed manure. The value of the manure depending, other things being equal, on the amount of nitrogen in the food consumed, and not so much as is sometimes supposed on the kind of animal producing it. JOSEPH HARRIS.—*Rochester, N. Y.*

HESS BARLEY.

HESS BARLEY.—Enclosed I send you a head of barley, the only one I could find in my barn, the crop having been threshed out early in the fall. I think it is hardly a fair specimen, but it will serve to show you, if you have not seen the variety before, the difference between this and the common two rowed barley, which consists in the kernels being placed nearer together—the same number occupying between one-half and two-thirds the length of head of the other variety. The straw is also much shorter and stouter, and will stand well where the other is entirely laid. It is being disseminated rapidly in this vicinity, and is estimated by different farmers to yield from ten to 20 per cent. more than the other, especially on rich land. It originated in the adjoining town of Fenner, on the farm of DAVID HESS, Esq., about six years ago. Three heads were discovered proceeding from one root among the common two rowed barley, which was planted and multiplied by him until he was able to sow two acres, I think, when he began to disseminate it among his neighbors. If you wish for a quantity of seed for distribution, I will send it to you. Perhaps a more full and accurate account of it may be obtained of Mr. HESS. J. B. MORSE.—*Cazenovia, Madison Co., N. Y.*

GROWING FLAX WITH BARLEY.—I will inform you of a practice which prevails here, of sowing flax with barley; it may be new to some of your readers. After the ground is plowed, two bushels of barley are sown to the acre and harrowed in; one peck of flax seed is then sown to the acre and cross harrowed. It is harvested and threshed together, and is easily separated when cleaning, by the flax seed passing into the screen-box. The barley seems to do quite as well as if no flax were sown. The past season, I had thirty bushels of clean barley and three bushels of flax seed to the acre. The land had been in corn the previous season, and was manured with stable dung and leached ashes. H. M.—*Lawrence county, Pa.*

Sheep Husbandry.

VERMONT AND THE WEST.

BY S. BIRD ROCKWELL, OF CORNWALL, VERMONT.

WHAT relation does Vermont sustain to the great west, on the important and deeply interesting subject of wool-growing; and what breed, or breeds of sheep, are best adapted to its wants and prosperity.

To the first of these inquiries we answer: Its relation is that of a vast reservoir to a distant jet or fountain; it is that of a mine to the production and circulation of the precious metals; or that of the vast and full ocean to the showers that fall in timely periods, for the refreshing of the parched and suffering earth. Vermont can, without boasting, challenge the world to produce a race of sheep surpassing hers in true and real merit. That class of sheep which will produce the largest yield of good wool and mutton from a given amount of feed, is undoubtedly the best. Vermont, in her celebrated Merino flocks, has such a class.*

It is an error to suppose that the Merino affords an inferior quality of meat. The greatest epicures in Brighton pronounce such an opinion unfounded in fact, and unsupported by reason; it is destitute of any basis in truth, and may be regarded as the dream of an Englishman, or a relic of the dark ages. For weight of fleece they are unrivalled. In 1840, Vermont produced more wool than Ohio, and yet had nearly one million less sheep. The saving to Vermont, in way of keeping, was nearly one and a half millions of dollars, as the estimated expense is $1.50 per head per annum.

Western farmers are now eagerly inquiring for some branch of agricultural industry that will give them better returns for labor and capital invested. Wool growing is that branch, and, in proportion as they obtain good sheep, so will they engage in this noble and lucrative employment. But from whence can they be obtained? Not from the north, not from the south, nor from the west,—but from the east. The breeders of choice sheep in Vermont, aided by a few good flocks now springing into note in the Empire State, must furnish this great field. Vermont has much of her own State to supply with better sheep. It is a mistaken notion, so generally obtained west, that all the sheep in Vermont are intrinsically valuable. The majority of the flocks in the State are indifferent in their character, and possess no peculiar merit. There is doubtless more thorough bred flocks in Addison and Rutland counties, than in all the rest of the State. The reputation of these counties is well earned and deserving. Vast outlays of capital and labor, during the last twenty years, is the corner-stone of this reputation. Money and time have been poured out like water, and no efforts spared to secure the best sheep that the world could boast of. We can but hope that this reputation will be guarded as a precious treasure. This eminent power and skill of producing stock sheep, is the cause of everything great in their position and history. It is the rude foundation of their fair Corinthian pile; and they are as much indebted to this as Egypt to her Nile, Athens to her schools, or Rome to her policy and arms. As a box of precious jewels let this reputation be preserved, and never suffered to tarnish by neglect or abuse. Shall it be so? We have had our fears awakened that it might prove otherwise. Under this reputation, very many indifferent sheep have been glossed over with oil and lamp-black, and taken West and sold for high prices. This may be news to some; others have

* "The Merino wether at four years old comes to perfection and makes a splendid mutton, and will invariably command a good price. I am sure that an acre of land will give as many pounds of Merino mutton as from any other breed, and I am sure of decidedly better quality. In proof of this last declaration I can produce the most satisfactory testimonials."—*Theodore N. Davisson, Esq., of Virginia.*

been made acquainted with the fact to their sorrow. Some villains have attained such a degree of skill in manufacturing these pseudo Merinos, that it is well calculated to deceive good judges. At first it was done slyly; now it is perpetrated with fiendish boldness. It has gone too long unrebuked already. Such conduct calls for the execrations of all good men. It is not only unjust, but impolitic; and must assuredly re-act with retributive justice upon us. In the name of Vermont—in the name of justice—in the name of everything good and true—we disclaim all fellowship with such deeds of darkness, and would hold up to the scorn of their fellow men all who are guilty of such *meanness.*

We have been advised of various deceptions practiced by the sheep-dealers of Vermont, by which they have been enabled to palm off, at high prices, very inferior sheep; which farmers are induced to buy for the purpose of *improving* their flocks. It is unfortunate that so many unprincipled men are always ready to take advantage of every attempt of the farmer at improvement, to obtain his money by fraud. If you are not a good judge, ask the advice of some competent friend; or buy only of men of known integrity.

BREEDS OF SHEEP, AND THEIR COMPARATIVE VALUE.

Few subjects are less understood by the generality of farmers than the proper management of sheep and the breeds best adapted for certain purposes. No species of husbandry will pay so well at this time, in most parts of the country, as a proper and careful attention to the rearing and fatting of this valuable animal; and we are glad to perceive an awakening interest exhibited in the subject.

For the manufacture of fine cloth, wool is valued according to its felting properties, and is possessed by some breeds in a higher degree than others. The serrated edge of the wool is supposed to be the chief cause of this difference, and it will therefore be interesting to give the appearance of a single fibre when viewed as an opaque object under a microscope of 300 linear power.

FIBRE OF MERINO WOOL.

The Merino wool was found to have 2400 serrations on an inch, and had the appearance of teeth on a fine set saw, projecting in one direction—from the root upwards.

FIBRE OF SOUTH DOWN WOOL.

The South Down wool is evidently a coarser article, with fewer serrations, and not so acute as the Merino. It is a useful article, but is now but little used in the manufacture of *fine* cloth, on account of its inferior felting properties.

FIBRE OF LEICESTER WOOL.

The far-farmed Leicester, or long wool, is never used for fine cloth; but is very useful for other purposes, on account of its strength and length. It is much thicker, the serrations are not so numerous and are less acute than either of the former. Its diameter is one five-hundredth of an inch in length, and there are but 1860 serrations in an inch.

Spain, from an early period, has been justly celebrated for the beauty and fineness of its cloth. From the eighth to the sixteenth century she was about the only manufacturer in Europe. In the thirteenth century there were in Seville 16,000 looms. After the expulsion of the Saracens the woolen manufacture languished. Ferdinand the Fifth banished 100,000 industrious artisans and weavers from the country, because they were Moors, and was honored with the title of Catholic in consequence. His successor followed his example, and expelled between 700,000 and 800,000 Mahomedans in four years. The natural consequence of this was the destruction of the manufacturing interest. The government discovered their mistake too late to avert the injury; yet, knowing the value of their flocks, the farmers sedulously cultivated them, and the sover-

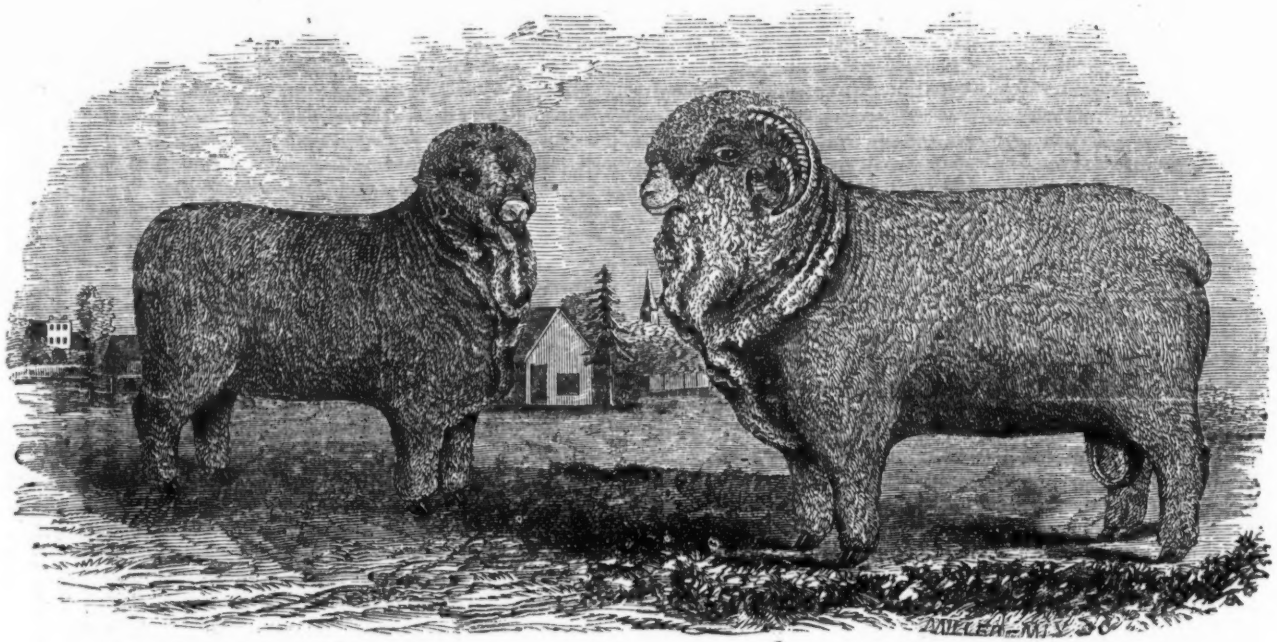
eigns, except in a few instances, strictly prohibited their exportation. In 1786, the king of France imported 400 ewes and bucks selected from the choicest breeds in Spain, and placed them on his farm at Rambouillet; from these the celebrated breed bearing this name derives its origin. Chancellor LIVINGSTON imported, in 1802, two very choice ewes and rams of this breed to his farm on the Hudson. Col. HUMPHREYS, our minister at Spain, also imported a considerable number of superior Merinos. But the largest importation was in 1809. Mr. JARVIS, of Vermont, when U. S. consul at Spain, shipped to this country, as he states, "200 Escurials, afterwards, 1400 Paulars, 1700 Aqueirres, 100 Nigrettis, and about 200 Montarcos. 2700 Montarcos were sent out by a Spaniard and a Portugese, and about 300 Guadaloupes by others; also, 200 to 300 Paulars, by Gen. DOWNIE, to Boston. Of the Montarco flock shipped by others, about 2500 came to Boston, Providence, New York, and other ports. All were imported in the latter part of 1809, '10, and '11, and were the only Leonese Transhumantes, if we include HUMPHREYS' and LIVINGSTON'S, (which I have no doubt were of the same stock,) that were ever shipped to the United States."

The excellence of the Merino consists in the unexampled fineness and felting property of the wool, and the amount given by each sheep. The closeness of the wool and luxurious yolk furnish these sheep with an impervious coat of mail, which resists rain, snow, or any impurities that would injure the wool; enabling the animal to stand, without much harm, great extremes of temperature; while its voracious appetite makes it apparently satisfied with the coarsest food, and it will stand an occasional scarcity better than any other breed.

Some object to the Merinos for their want of symmetry, their paucity of fat and lambs, and their liability to cutaneous diseases. The latter objection we think unfounded; and when it occurs, is doubtless owing to improper treatment rather than anything peculiar in the functions of the skin. None will question the great value of the Merino in a district where sheep are kept principally for their wool; as they will, with proper attention, yield a larger quantity, which sells for a higher price than any other.

But as the population of the country increases, and a greater amount of food is consumed, mutton will be in request and high prices paid for a superior quality. In the neighborhood of large cities the demand for good mutton has induced many farmers to raise sheep more for the mutton and tallow than the wool; and they find it exceedingly profitable. With such, the South Down, or middle wool, is a deserved favorite. The fine flavor of the mutton is well known, selling in the London market for two cents per pound more than any other kind. The wool is of a medium quality, rather short and thick, selling for about twelve cents per pound less than Merino. The average of a good flock would be about four pounds of washed wool per sheep. They mature much earlier than the Merino. We have known a flock of 125 South Down wethers, fed with American oil-cake, clover hay, and ruta baga, average 168 lbs. live weight, and 96 lbs. carcass when slaughtered, at from ten to twelve months old. They were never shorn. One hundred ewes, unless of very pure blood, will bring 150 lambs. The ewes are usually sold off when five years old, as they then begin to lose their teeth. A buck, if grained, will serve eighty ewes in a season. The accompanying engraving represents two fine specimens of this breed in the possession of LEWIS G. MORRIS, exhibited at the New York State Agricultural Fair in 1851, to which the Society's premium was awarded as best over two years old. They are very hardy, standing cold, wet weather, and heavy soil, much better than the long wooled sheep. Two pounds per head is a good average weekly increase, when fatting for the butcher; though we have known 100 average three and a half pounds increase per week, in summer, when running in good clover. In the vicinity of cities we believe this breed will pay better than any other.

The Leicester, or long wooled sheep, has its admirers, who prefer it to any other breed. Mr. BAKEWELL, of Dishley, England, by breeding in-and-in, and careful attention to the



MARQUESE DE ROUGE,
One Year Old, Sheared 10 lbs. 10 oz.

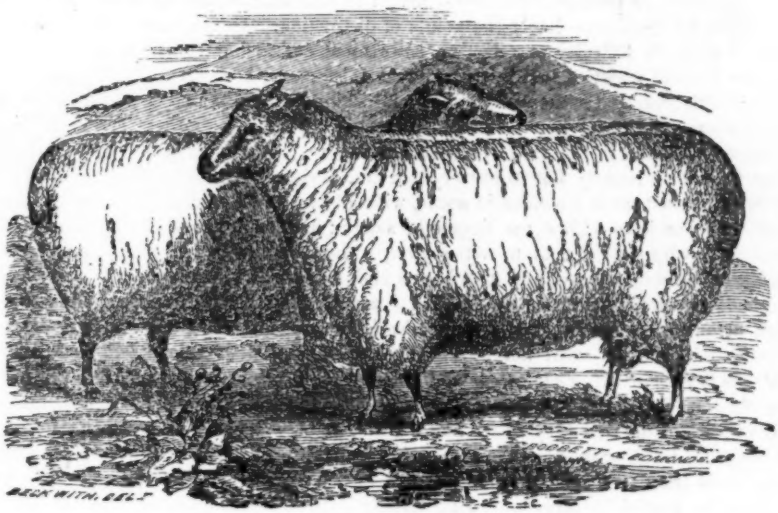
LOUIS PHILLIPPE,
One Year Old, Sheared 14 lbs. 6 oz.

FULL BLOOD MERINO SHEEP.

IMPORTED FROM FRANCE BY J. A. TAINTOR, ESQ., OF HARTFORD, CONN., AND NOW OWNED BY JOHN D. PATTERSON, OF WESTFIELD, CHAUTAUQUE CO., N. Y.

SOUTH DOWN SHEEP.

defects and superior points of the ewes and rams he bred from, raised this breed to great perfection; in fact, may be said to have originated it. For rich lowland pastures, the Leicester has no equal. It matures earlier, fats quicker, and yields more wool for the same amount of food, than any other breed. It is not such a good breeder, is a poor suckler, and the mutton is coarser than the South Down. It will not stand wet, heavy land, and an occasional scarcity of food, so well as the short wools. There are a considerable number of this breed, of more or less purity, scattered throughout the country. We give an excellent representation of the best long wooled buck and ewe over two years old exhibited at the New York State Fair at Rochester in 1851, owned by J. McDonald and Wm. Rathbone.



LEICESTER SHEEP.

Horticultural Department.

CONDUCTED BY P. BARRY.

THE FUCHSIA.

The Fuchsia is a green-house shrub of small size, seldom exceeding five to six feet in height, and many species not over two or three feet. There is nothing particularly remarkable about the wood or foliage, the chief beauty and character being centered in the flowers. These are of a tubular shape, and have a very graceful pendant habit, combined with great diversity and strong contrasts of the most brilliant and delicate colors. Nearly, if not all, the species yet introduced, are from Mexico and South America. It belongs, in common with the *Clarkias*, *Onœtheras*, *Godetias*, *Zauchsneria*, and several other ornamental genera, to the natural order *Onogroceæ*, (Onograds of Lindley's Veg. Kingdom,) and received its generic name in honor of a German botanist, Leonard Fuchs. It has been cultivated in Europe for thirty years or more, but until ten or twelve years ago did not receive general attention or become really a popular plant. Recently it has become one of the leading objects of pot-culture, and in regard to popularity ranks with the *Rose*, the *Dahlia*, the *Verbena*, &c. It hybridizes with the greatest ease and success; and therefore varieties almost without number, and far surpassing in beauty the original type, have been produced. In Europe, not only in commercial plant establishments, but in private gardens we find whole houses filled with it. Some of the most interesting sights of pot plants we met in our European travels last summer were collections of Fuchsias, in some cases forty or fifty varieties together, all loaded with their graceful, pendant, brilliant blossoms. The prevailing system of flower-gardening, which is the bedding out of green-house summer-flowering plants in masses, has given a great impulse to Fuchsia culture; for in England it is well adapted to this mode of garden embellishment. Like most other plants that hybridize freely, a multitude of varieties are produced that are deficient in character, requiring the critical eye of the experienced grower to detect the points of distinction. Hence, now it has become a matter of no little difficulty to select an assortment embracing the most beautiful and yet really distinct varieties. It is a very great misfortune, both for the professional and amateur cultivator, that some well defined and stringent regulations do not exist for the admission or exclusion of new varieties. The evil begins to be no less seriously felt in the ornamental than in the useful branches of culture. We know of no source to which we can look for a remedy but to nurserymen and florists. If they will unanimously set their faces against mere novelties in name, without any novel or distinct characters, then people may purchase with some degree of safety; but as long as the present foolish rivalry as to who shall get all novelties *first*, without regard to real merits, so long will floriculture be embarrassed, and purchasers and growers be disappointed. Every man who sends an order for a dozen or half a dozen Dahlias, Roses, Fuchsias, Chrysanthemums, or any other genus, should say, "*Send me none but what are really distinct—obviously distinct. I want not merely slight botanical distinctions, but such as will enable me to have striking variations and contrasts in growth, foliage, and habit of plant, or in the size, form, and coloring of the flowers.*" If purchasers will express themselves in this way, and say that they prefer half a dozen good, well marked, and really beautiful varieties, to a dozen or twenty that possess but a striking *uniformity*, they will be getting on the right track; and nurserymen and florists, who are generally but erroneously supposed to be partial to large and long lists of names, will, we know, acknowledge the favor gratefully. Both professional and amateur growers should work together in this

matter for the common good; if they do, we venture to predict that no man will have the assurance to ask $5 or $10 for a *new* plant that does not possess a single characteristic to distinguish it from others that can be bought for $5 per dozen.

To return to our subject, the Fuchsia, we will state the points that claim attention in judging of the merits of a variety. As we have already noted, the chief attraction lies in the flowers, and it is to them we must look, in the main, for the merits of the variety. The Fuchsia flower consists, like most other flowers, of a calyx, corolla, stamens, and pistil. These parts in the aggregate make up the flower; and it is their relative size, form, and color, that give those characteristics that constitute the excellencies and beauties of the variety. The calyx, unlike the calyx in most other well known flowers, is colored, and is one of the most striking parts of the flower: a part of it, at the base, is a tube; at the mouth it is divided into four parts called sepals, and these are more or less reflexed, (turned backwards,) as shown in some of the annexed figures, displaying the corolla, which is situated in the throat of the calyx. The more this calyx is reflexed—that is, the more fully the corolla is displayed, the better is the flower, other things being equal. The calyx and corolla are seldom of the same color; and the qualities of the flower depend not only on the depth, richness, and delicacy of the colors, but on the beauty or novelty of the contrast between the calyx and corolla. Then the stamens and pistil, by their length, projecting far beyond the other parts, and by their coloring also, especially of the anthers and stigma, give character to the flower and constitute part of its beauty. Then the flower stalk, or petiole, must be considered: the longer it is, the more pendulous the flowers are, and the more graceful the habit; the stronger it is, the better the flowers stand out from the foliage. The requisites of a plant are—distinct and fine foliage; free, robust growth; and profuseness of bloom.

These are the main points to look to in selecting a Fuchsia or a collection. People are too apt to be struck with one feature, and overlook the rest. For instance, if th y find a plant with a flower on it, and it happens to please them, they seldom stop to inquire into other important qualities that should never be overlooked. Now we shall describe briefly a few select varieties selected from fifty which we have under cultivation. The first on the list is the

PEARL OF ENGLAND.

Pearl of England.—This, to our fancy, is the finest yet introduced; certainly the finest of all those hybrids with light colored tubes. The annexed figure shows this in the natural size. The calyx is of a pale flesh color, or nearly white, well reflexed, showing a a fine, full, bright scarlet corolla. It grows freely and blooms most profusely. New.

Eliz Mielliez.—Nearly as good as the preceding, and somewhat similar. The calyx is of a rosy blush towards the base, nearly white at the mouth, well reflexed, showing a deep rosy pink corolla. Grows well and blooms freely.

Fair Rosamond.—A long, elegant flower, well named for its grace and delicacy. Calyx long, almost pure white, not much reflexed, but showing a fine, rich, scarlet corolla. Plant vigorous and blooms freely.

Snow Drop.—Flower rather short; calyx pure white; corolla light crimson. Plant

grows freely, but requires pinching back to keep it compact and well branched.

Magnificent.—A splendid large flower, rosy calyx pretty well reflexed, showing a large, rich, rosy salmon corolla.—Habit spreading and vigorous, and a free bloomer.

Nonpareil.—A large, showy flower; calyx rich deep crimson, well reflexed, showing a fine rich rosy purple corolla. Good habit.

MAGNIFICENT.

Grand Master.—Very distinct. Calyx short, of a bright red. Corolla large and conspicuous, of a deep purple. Branches dark red, slender, and drooping. Blooms profusely.

President.—Very distinct. Calyx pale rose; sepals very narrow and well reflexed, showing an unusually large violet red corolla. Foliage distinct, large, dusty green, heart shaped, and sharply toothed.

Exoniensis.—Rather an old sort now, but good and distinct. Scarlet calyx well reflexed, contrasting finely with a rich, dark violet purple corolla.

Fulgens.—A distinct species, introduced a few years ago. It has tuberous roots, strong succulent shoots, and leaves almost as large as a man's hand. The flowers are produced in clusters. The calyx is two inches long, of a bright scarlet. The corolla, scarcely seen, is of a deep fiery scarlet. When this variety was introduced, it created quite a sensation among florists, and is yet one of the most admired. It is a strong, rapid grower, rather coarse, and attains the size of a large shrub.

Corymbiflora.—This is also a distinct species, from Peru. It is a rapid grower, and attains a large size. Foliage very large, of a pale green, soft and downy. Flowers in large clusters, very long—two inches or over—and of a bright crimson. A showy and an elegant plant, but somewhat coarse, and appearing to good advantage only when it has attained large size and full blooming condition. There are two new ones that promise well—hybrids between the two last named. One is called *Fulgens corymbiflora;* and the other, *Corymbiflora alba.*

Serratifolia.—This is also a species, or a sub-species, quite distinct in appearance—

SERRATIFOLIA.

newly introduced, from Peru. We have bloomed it the past autumn, and are delighted with it. It does not bloom like the others, in the summer, and we began to think badly of it; but in October the young plants of last spring commenced blooming, and continued through November and even December—a season when they were highly desirable. This late blooming of the young plants may be a useful trait. The habit of the plant is low, stout, bushy. The leaves are very dark, opposite in fours (verticillate) on the

branches, and the flowers are produced from their axils, one from each leaf. Flowers about one and a half inches long, with a graceful drooping habit. Calyx bright rose; points of sepals green; corolla scarlet; stamens prominent, bearing beautiful white anthers: making in all a fine assemblage of colors and contrasts. This looks like a plant that will stand the sun well; and if so, it will be a first rate bedding plant. For this purpose plants of one season's growth should be used, in order to ensure a good autumn bloom. The engraving on preceding page represents this flower of natural size. There is also a *Serratifolia alba* and *rubra*, but we have not bloomed either yet. *Serratifolia multiflora* is more dwarf and a more profuse bloomer than its type.

Globosa major.—An old favorite, and still holding its place well among all the new and fine sorts. It is of low, bushy habit, and blooms in immense profusion, like the old *Globosa*, when even three or four inches high; and it blooms all summer. The flowers are almost globular, and before they open, hang like elegant crimson beads on the branches. The calyx is crimson and the corolla purple. It succeeds well in the garden in the summer, and is on the whole so fine a plant as yet to be indispensable.

GLOBOSA.

Alboni.—This is a hybrid from *Globosa*. Flower short. Calyx pale rose, well reflexed. Corolla blush, edged with deep rose. Very pretty, and a most profuse bloomer.

Tom Thumb.—Another from *Globosa.*—Blooms when only two or three inches high. Flowers small, globular. Calyx cherry red. Corolla purple.

Spectabilis.—This is a *species*, found in the Andes by Mr. Lobb, (Veitch's collector,) and introduced into England in 1848. It is described as the "Queen of Fuchsias." The plant, like *Fulgens* and *Corymbiflora*, attains a large size; has large, rich, deep green foliage, and long, elegant, deep red flowers.

President Porcher.—Raised in 1850, by Mielliez, and nomed after Porcher, of Orleans, who is one of the best Fuchsia growers in France. A superb variety; large foliage, and very large, finely shaped, purplish crimson flowers. Porcher says it knows no rival.

Venusta is a *species* also, or a sub-species, of which a good deal was said; but it turns out to be similar and inferior to *Serratifolia*.

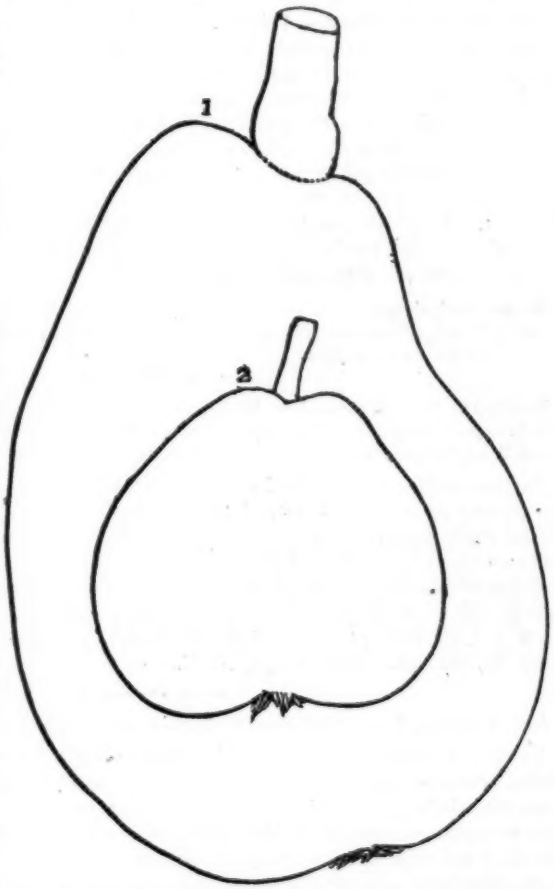
Syringaeflora is another *species*, grown by M. Van Houtte, of Ghent, from seeds sent him from Guatimala. In the space of one year it grew to five feet in height, well branched, and produced immense clusters of flowers after the style of a Lilac; hence its name. The beautiful engraving in the "Flore des Serres" is really tempting, but the reports of cultivators are not very favorable.

We must add, before leaving this part of the subject, that we might name a dozen more fine sorts; but our list is already long, and we have given such as *we know* to be really distinct and desirable. We intended to give some hints on the propagation and culture of the Fuchsia, but we have already extended this article beyond the allotted bounds, and must defer the remainder till next month.

DESCRIPTIONS OF NEW PEARS.

BY B. DESPORTEZ, OF ANGERS, FRANCE.

Bonne des Zees, (Fig. 1.)—*Fruit*—large, about four inches long and two inches and three quarters in diameter; pyriform, irregular. *Surface*—uneven, one side concave and the other convex. *Stalk*—very large, irregular, larger at the base, about two-thirds of an inch long, inserted on the surface. *Calyx*—small, set on the surface, segments open. *Skin*—thin. *Color*—gray, especially toward the eye and stem; greenish yellow in the middle. *Flesh*—white, very fine, melting, tender, buttery, juicy, and sugary. Ripens end of September and beginning of October.



This fine pear deserves, by its beauty and excellence, an extensive trial. It was put in the trade by Mr. DUPUY, and was originated from seed at Loches, France. The tree is a vigorous grower, naturally pyramidal in habit of growth, and a good bearer.

Beurre Derouineau, (Fig. 2.)—Some years ago, Mr. DEROUINEAU, of Angers, having sown some seeds from the *Glout Morceau*, obtained young trees, one of which came into bearing in 1840. Mr. DEROUINEAU presented the first fruits to the committee of horticulture, who gave to it the name of the originator.

This fruit is small, as will be seen by the annexed outline; obovate or obtuse turbinate, roundish toward the eye, very broad, narrowing one-third of its height towards the stem, where it terminates in a small basin, in which the stalk is inserted. *Stalk*—about one-third of an inch long, slender, and upright. *Eye*—large, broad, closed, set in a broad, deep, and somewhat folded cavity. *Color*—deep gray, spotted with russety gray dots everywhere, except around the basin of the eye. *Flesh*—white, fine, melting, buttery, juice abundant, sugary, and highly perfumed. It is one of the most delicious new pears obtained in a long time. We compare it, for its high flavor, to the American *Seckel*, which it also resembles in form; and hence we call it the *French* Seckel. It ıpffers from it only in being darker colored and ripening later—about the last of Oct.

This kind produces annually an abundant crop. The fruits are borne in clusters of four or five together. The tree is one of the most vigorous growers in the nursery, of pyramidal form, nevertheless the branches spread at right angles with the stem. The wood is a reddish brown, covered with large light gray dots, short jointed; buds short and point outward; the leaf stalks are of a rose color at the base. It is yet but very little known; but when it becomes more so, it must occupy a place in every well assorted fruit garden.

THE BRADSHAW PLUM.—I noticed your description of the *Bradshaw* plum, in the October number of the Genesee Farmer, with some interest, because it is a particular favorite of mine. Your description is correct as far as it goes, but you failed to notice a peculiar feature in the insertion of the stem on a protuberance resembling a small button lying flat on the end of the plum. This feature belongs to nearly all the large specimens. I have trees of this variety which have borne for several years, and the fruit has been uniformly fair and never in the least been affected by cracking or rotting on the tree, while that of every other variety in my collection has been more or less affected in that way. I suppose you inadvertently substituted the name of Judge BURROUGHS in place of mine, and South Bend in place of Plymouth. If so, be so good as to correct. GROVE POMEROY.—*Plymouth, Ind.*

We are much obliged to Judge POMEROY for calling our attention to the error we committed in referring to Judge BURROUGHS, as well as for the valuable information he gives us from his experience in regard to this excellent plum.

THE BAILEY SPICE APPLE.—JOHN W. BAILEY, Esq., of Plattsburgh, N. Y., sends us the following note in regard to our notice of his apples. It is possible we are mistaken in regard to the identity of the *Bailey Spice* and *Pomme Royal*—another season will satisfy us.

In your notice of the apples I sent you, you say that the *Bailey Spice* is so much like the *Pomme Royal* or *Dyer* as to leave little doubt, in your mind, of their identity. The *Bailey Spice* originated in my orchard; the tree is more than fifty years old. I am quite confidant that scions of this variety have never been given out except by myself, and that within the last five or six years under the true name, and I therefore conclude that there is *no doubt of its being distinct from every other variety.* I have no doubt when you see fair specimens of the *Walworth*, you will form a higher opinion of it. JOHN W. BAILEY.—*Plattsburgh, N. Y.*

J. R. COMSTOCK, Esq., of Mabbettsville, Duchess county, New York, writes us as follows:

The best November pear we have had this year is *Epine Dumas** of Mantel city, of New York. *Form*—long, varying from oval to obtuse pyriform. *Color*—greenish yellow. Lasts the whole month—has been "best" four years in succession on both pear and quince stocks. *Josephine de Malines* bore this season—is ripe now—would be very fine indeed if not a little too astringent. *Winter Nelis* is an October pear three years in four. The great and never-failing winter pear here is the *Easter Beurre* on sucker pear stocks, that fill the ground as full of fibrous roots as the quince. We grow it on a warm gravelly loam, on the south side of a hill, near the base.

* *Duc de Bordeaux.* It proves with us a remarkably prolific and good pear.—ED.

S. W. COLE, Esq., late editor of the New England Farmer, author of "Cole's Fruit Book," died at his residence, near Boston, Mass., on the 3d of January. He was long connected with the agricultural press, and his death will be widely regretted. He was an industrious, observing man.

Work for the Month.—Very little can be done in the garden or orchard during the month of February. *Old apple trees* that have been neglected until the heads are become dense and twiggy, may be thinned out at any time; *scions* may be cut; *poles* for peas and beans, and supports for climbing plants, rustic baskets, flower stands, or other ornaments, may be constructed; *manures and composts* collected, turned, mixed, and prepared for application; *implements* may be put in order; and various arrangements made that will facilitate operations in the spring. Those who intend to use *hot-beds* may be getting them in readiness for the middle of March. The *fruit room* will demand attention; and it must be remembered that the conditions most favorable to preservation are dryness, coolness, and uniformity. Warm air should never be admitted among fruits, as it creates moisture by condensation, and this promotes decay. All unsound specimens should be removed at once, and nothing like decaying vegetables, or anything that emits an offensive odor, be for a moment permitted near the fruits.

A National Park.—Our government at Washington has really taken one step towards the formation and improvement of public grounds. 150 acres of land within the city of Washington is to be converted into a magnificent park, embracing four or five miles of carriage drive, foot walks, ponds, fountains, statues, &c., and a complete collection of the trees indigenous to North America. The plans have been given by A. J. Downing, Esq., and the work is to be executed under his superintendence. It is supposed that three or four years will be required for its completion.

The question of a great park in the city of New York is also *agitated*, but the New Yorkers hardly know what a park means. Philadelphia is also moving in the same direction. The times are brightening.

Fruits from France.—Mr. Andre Le Roy, of Angers, France, sent to the Massachusetts Horticultural Society a case of fruits for exhibition, comprising 116 varieties of pears, 36 of apples, 12 of crabs, walnuts, chestnuts, &c.; and we learn from Hovey's Magazine, that only about 30 varieties of the pears, and the same number of the apples, arrived in good order, owing to detention in England. Mr. Le Roy has, in a recent communication to us, expressed his intention of sending a collection to our next State Fair. So much for steam communication. Europe and America will soon be making exchanges of fruits on an extensive scale.

The Season.—The winter here set in unusually early, and up to this time (Jan. 10) has been marked by extreme severity—a continued succession of hard frosts and heavy falls of rain and snow. On the night of the 2d of January the mercury fell 10 deg. below zero—a degree of cold seldom experienced here. No serious injury is yet done to fruit trees or the wheat crop, and now we have a fine warm coat of snow eighteen inches deep. We trust the close of winter will be more temperate than the beginning.

The North American Sylva.—A new edition of this magnificent work of Michaux, on the Forest Trees of North America, with Nuttal's continuation, has just been issued by Robt. P. Smith, of Philadelphia; the whole forming six volumes royal octavo, with 278 plates. This will be a real treasure to every man who can afford to place it in his library. Price, $45 dollars with colored plates; $31 uncolored.

English Agricultural News.

REAPING MACHINES IN ENGLAND.—We were not surprised at the success of McCormick's Reaping Machine in England, but we were certainly surprised that it should gain such a decided advantage over Hussey's as for a time to throw it entirely in the shade. We were satisfied either that Hussey's Machine was not in proper order, or was managed by some one ignorant of its use. The latter appears to have been the case, according to the London Farmer's Magazine, from which we quote the following:

"A porter from the exhibition, [possibly a *cockney*,] who had never seen wheat in his life, was on the first trial sent to work Hussey's Machine, who did not know how to set it; the consequence was, it left a high stubble and did not work well. McCormick's had a better fate, and won the 'Great Medal.' Hence he challenged the world, at the Cleveland Agricultural Society, and HUSSEY or his agents accepted the challenge. Twelve practical farmers were appointed to decide on the merits of each. The day was fixed, and though it was most unpropitious, yet a vast concourse of people assembled; and though it rained 'cats and dogs,' with a strong wind, yet the small, snug, simple, Hussey's Machine cut down its breadth of corn closely, evenly, and well. It was a triumph! Two horses walked gallantly away with the machine, nor did it seem to distress them, while little effort seemed to be necessary to receive the corn from the well arranged platform on which the lancets, for such they are, left it after cutting. There were no ugly and ponderous flappers—no array of useless work, but a condensed, simple arrangement of parts necessary to effect its purpose. McCormick's Machine came next to the trial; but it would not work at all. It operated more like a roller; it refused to cut the corn; and the trial was abandoned."

The jury, on account of the unfavorable state of the weather, separated without making any award. Another day was fixed, and the machines tried on wheat and barley; when the jury unanimously decided in favor of Hussey's Machine.

"By a vote of eleven to one, Hussey's Machine caused the least waste, did the most work, leaves the cut corn in the best order for gathering and binding; and unanimously, that Hussey's is best adapted for ridge and furrow, and at first cost is less price, and least liable to get out of order."

AMERICAN PLOWS IN ENGLAND.—At the Storrington Farmers' Monthly Meeting, the subject for discussion was "Agricultural Implements, and Horses." We give a few extracts:

"Mr. HARDWICK said: 'The first and most important implement on a farm is the plow. It is made on various principles adapted to the different soils and purposes for which it is required. Hence it is impossible to point to any one particular plow, and say, 'This is best,' unless the description of soil and the precise operation it is to perform be at the same time pointed out.

"'The roller is also an implement indispensable to the agriculturist. A wooden one—though in my opinion not so good as an iron one of larger circumference, and in two parts—is most extensively used, the first cost being small.

"'The drill is an implement extensively used in depositing the various seeds. Many think there is great advantage in drilling over the broadcast system. My own opinion is, that the difference in the two systems, if carefully noticed with regard to the weight of the crop, would be found to be very trifling. I am, nevertheless, of opinion that the drill in many cases is a very useful implement.'

"Mr. LEAR said: 'I will just draw your attention to the American plows, which perhaps some of you have seen at the exhibition. That they have been pretty well ridiculed I know; but that does not detract from their value; and I am inclined to think they are well adapted for the work they are intended for. The turn-furrow is exceedingly well shaped, and in fact is a business-looking thing altogether.'

"Mr. W. BATTCOCK said if any of them had an inclination to inspect one of these plows, it might be seen at Major SANDHAM's farm, and also some work it had performed. He [Mr. B.] was perfectly satisfied of its usefulness on light soils, for preparing the barley or turnep season. It required but one horse to draw it. [Hear, hear. 'That's the sort we want.'] He was aware this could not be done on heavy, stubborn land; but for the purposes he had mentioned, it appeared to him a very useful implement."

FROM a private correspondent we learn that farmers generally are putting forth all their energies to meet the low price of their products caused by the removal of protective duties. They are growing more green crops and keeping a larger stock, and are thus able to make ends meet. The contemplated alteration in the franchise will strengthen the free trade, manufacturing, liberal party, and so relatively weaken the landed interest.

Editor's Table.

Our friends who are laboring to increase our circulation, in all parts of the country, are placing us under great obligation, which we shall endeavor to repay in part by sparing neither money nor labor to make our journal meet their most sanguine expectations. Additions can be made to clubs at any time, at the lowest club price. Those who have forwarded clubs of five can increase to eight by forwarding $1. The Post Office law does not allow us to send receipts; and those who receive the paper, unless we write them on the subject, may consider it as such.

Answers to Inquiries.—We endeavor to answer inquiries so as to be understood by all. To do this we have to occupy considerable space. Those who have made inquiries and received no answers, must exercise patience, as all shall receive attention soon. During the winter season farmers have leisure to write, and we are pleased that they embrace the opportunity. We often, at this season, receive enough matter in a day to fill a number of our journal. All shall have a hearing in due time.

Ladies' Department.—Although we have given no pages under this heading, Mr. Barry has occupied the room with descriptions of flowers, &c., that we know will be acceptable to our female readers. All who have applied for seed shall be furnished in season for spring planting. We intend to commence descriptions of the best annuals, in our next.

Poultry Profits.—Edw. Dimmick, of Pleasant Mount, Pa., gives his poultry account, for the past year, as follows:

Kept fifteen hens and one cock, from which we received

100 dozen eggs, at 13 cents,	$13 00	
90 chickens, at 13 cents,	11 70	— 24 70
Cost of feed,		10 00
Profit,		$14 70

Large Hog.—D. Edwards, of Little Genesee, N. Y., writes, Nov. 11: "We yesterday killed a hog twenty-seven months old, connected with the Leicester family, that weighed 800 lbs. He has had none but common keeping until this summer. We have given him his feed in a sour state, and fed but three times a day."

We suppose our western friends can beat this, but as we don't pretend to compete with them in the pork line, they must let us boast a little among ourselves.

Planting Potatoes in the Fall.—C. D. Hart, of McLean, N. Y., suggests the idea of planting potatoes in the fall. He states that O. Wing, of Cortland county, has pursued this course, and the yield is much better than with those planted in the spring.

Trying Lard.—"A Farmer's Wife," of Mount Morris, N. Y., wishes us to state, for the benefit of other farmers' wives, that a table-spoonful of salæratus to a pailful of lard, put in soon after it begins to heat, much improves the quality, rendering it a pure white. A little more attention than usual is necessary to prevent its burning.

Inquiries and Answers.

Coal Ashes and Saw-dust as Manure.—A gentleman of Henry county, Ky., wishes to know the value of saw-dust as manure, and the best means of hastening its decomposition; and E. Appleton, of Pittsburgh, and others, inquire as to the value of coal ashes.

Saw-dust contains from four to ten pounds of nitrogen per ton. This would indicate that its manuring value was a little higher than wheat straw, but it is much more difficult to decompose and render fit for assimilation by the plant. If plowed in in its natural state, it would do good, but not to that extent the above account of its composition would lead us to think, owing to its insolubility and difficulty of decomposition. A pound of nitrogen can not be bought in guano or sulphate of ammonia for less than twelve cents per pound; so that saw-dust, compared with these manures, would be worth on an average eighty-four cents per ton. We think it could be profitably used as an absorbent of liquid manure, by being placed at the bottom of the barn-yard, or in some place where this liquid runs; it would thus imbibe the water, and a decomposition would take place, and at the end of a year or so you would have a most valuable manure, inasmuch as this liquid which in so many instances is allowed to run away and be lost, is by far the most valuable portion of the manure, containing all of the alkaline phosphates and a greater part of the ammonia; these would unite with the saw-dust and not only be exceedingly valuable themselves, but convert the saw-dust itself into a good manure. We hope our friend will try one or both of these plans, and give us the results. Chemistry, to be of much

value to agriculture, must have the aid of the practical farmer, who can carry out the indications of science and disprove or establish them by practice.

Coal ashes in England are quite plentiful, coal constituting the whole of their fuel. They are mostly preserved with care and used with guano and sulphate of lime, serving to increase the bulk and enabling the *drill* to distribute these concentrated manures evenly over the soil. They are also used as a manure for meadow grass and clover with beneficial effect. They are also very useful to mix with nightsoil, absorbing the fluids and rendering its removal and application to the soil less difficult and disagreeable. On the whole, we are inclined to think their value is to be attributed to their mechanical effects on the soil, rendering it more porous and absorbent, rather than to any chemical ingredients they may contain. It is often used by market-gardeners in forming beds for early seeds, and is particularly commended as a manure for radishes.

METHOD OF CURING HAMS.—In answer to inquiries on this subject, we give the awards of the Maryland State Agricultural Society, at its last exhibition. The method of curing is wisely given in each case. The hams of Virginia and Maryland have long been celebrated.

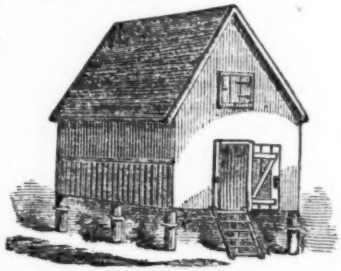
T. E. HAMILTON'S RECIPE.—*First Premium.*—To every 100 lbs. pork take 8 lbs. of G. A. salt, 2 oz. saltpetre, 2 lbs. brown sugar, 1¼ oz. of potash, and four gallons of water. Mix the above, and pour the brine over the meat, after it has lain in the tub for some two days. Let the hams remain six weeks in brine, and then dried several days before smoking. I have generally had the meat rubbed with fine salt when it is packed down. The meat should be perfectly cool before packing.

J. GREEN'S RECIPE.—*Second Premium.*—To 1,000 lbs. of pork, take half a bushel and half a peck of salt, 3 lbs. saltpetre, 3 lbs. sugar, and two quarts of molasses. Mix—rub the bacon with it well; keep on for three weeks in all; at the end of nine days take out the hams, and put those which are at the top at the bottom.

R. BROOKS, JR'S RECIPE.—*Third Premium.*—One bushel of fine salt, half bushel ground alum salt, one and a half pound to a thousand pounds of pork, left to lie in pickle four weeks, hung up and smoked with hickory wood until the rind becomes a dark brown.

C. D. SLINGLUFF'S RECIPE.—*Fourth Premium.*—To 100 lbs. green hams, take 8 lbs. G. A. salt, 2 lbs. brown sugar or molasses equivalent, 2 oz. pearl ashes, 4 gallons water; dissolve well, skimming off the scum arising on the surface. Pack the hams compactly in a tight vessel or cask, rubbing the fleshy part with fine salt. In a day or two pour the above pickle over the meat, taking care to keep it covered with pickle. In four to six weeks, according to the size and weight of the hams, (that is to say the longer period for heavy hams) hang up to smoke, hock up, smoking with green hickory wood. I have put up hams for the last 12 or 15 years by the above recipe with uniform success, equal at all times to the sample now presented.

RAT-PROOF GRANARY.—YELLOW BUG.—The best rat-proof granary within my observation is set on posts smoothly turned, and sheathed with tin about a foot in width from the upper end. The posts stand three feet out of the ground, and the steps are hung on hinges or pivots, to be raised and turned in when the granary is closed. No rat ever dined in that crib.



RAT-PROOF GRANARY.

The lower floor is used for corn, (both sides being neatly slatted,) and the second (reached from the first by stairs swung on pivots as before) for the smaller grains.

Although out of season, it may prove of advantage to some of your subscribers another year to know how to prevent the ravages of the "yellow or striped bug." Tansy failed entirely, so far as my experience was concerned. Hen manure dissolved in water and sprinkled on the vines, succeeded tolerably well, but required constant watching and repetition. But the best method for a limited number of plants, as I think, is to set over the hill as soon as they appear, open boxes eighteen inches square and six to eight inches deep, gathering the earth about the bottom to prevent their crawling under. In the same garden, during the last summer, those vines which were protected by tansy were covered with bugs, while those inclosed in boxes, only a few feet distant, escaped unharmed. A dozen or two of such boxes can be made in a few hours on some winter's day, out of old fence boards, if need be, and had in readiness for the summer's use.

RAT-PROOF GRANARY.—I noticed in one of your numbers an inquiry for a rat-proof granary. In answer to that, I will only give the form of mine, which so far has had the desired effect. I make it as tight all round as convenient with common lumber, except a place in the center, overhead, for the rats to go in if they would; but seeing no way to get back, they do not like to jump through the hole. This I think prevents them from gnawing at any other place. The hole must be in the ceiling, under the joist, and a floor over it, so the rats can have free access to the hole. P. S.—*Rollin, Mich.*

Gas Lime.—In your January number is an inquiry as to the value of gas lime in the destruction of the larvæ of the May bug, &c.; and having used a little, as also the tar, some eight years since, I give you the result of my experience. My garden, which was a light sandy loam, was much infested with the centipede and the larvæ of what is called in some parts of England the Fern Shaw, a small brown beetle rather less than the Rose bug, and which in its perfect state is exceedingly destructive to apples, pears, peas, &c., &c. In October I spread a load of lime fresh from the gas works on about three rods, and dug it in immediately, thus absorbing the ammonia which was passing off freely. In the spring following I planted with early potatoes, manuring as usual with stable manure; and the crop was certainly more free from the ravages of the centipede than any I had before raised, and but few of the insects were found; but as to the larvæ of the beetle, I did not perceive any diminution in their numbers, nor was there any marked increase in the crop.

To one gallon of the tar I added one pound of sal soda and ten gallons of boiling water. This mixture I applied to a part of a row of peas, and to the remainder pure water. The part to which the mixture was applied made a much larger growth of haulm without a corresponding increase of pods. This increase, I have no doubt, was due more to the soda than the tar. I also applied the tar undiluted to the stems of some old gooseberry trees that had been infested very much with the caterpillar the previous summer, and the application proved fatal to the trees. L.—*Brooklyn, N. Y.*

Application of Manure.—I wish to learn through your paper, as I have had access to it but a few months, something of the use of manure—the most economical way of applying it. I mean manure that is made through the summer season, from the droppings of cows, &c. I gather up the droppings and mix well with dirt through the summer; usually in the fall I have carted it out, and sometimes spread it on green sward and plowed it in, when I intended to plant even the coming season; and sometimes I have, after digging my potatoes, spread it on and plowed it in, where I intended to seed down to grass the coming season; and my expectations have not been fully realized. I wish to know your opinion in spreading it on as a top-dressing for grass, and at what time it should be used as a top-dressing. I used it in this manner for the purpose of getting it out of the way, and so that it might not dry up and thereby loose its strength. I also wish to know the best way of using soap boilers' ashes, whether to sow on grass ground, and at what season, in the fall or spring, or to put them on the land where we sow down to grass.

A Friend to Agricultural Knowledge.

1st. Be sure to save all the liquid as well as solid part of the manure voided during both summer and winter. This can be done by bedding cows, and other domestic animals, on any absorbent substance, like dry swamp muck, loam, straw, forest leaves, and the like.

2d. On open, porous soils, and such as are inclined to surface wash, (hill sides,) it is best to apply manure in the spring before grass starts, or at that time; but on retentive soils, to apply manure in the fall and turn it under for a spring crop, is sound policy. If applied to a meadow, or pasture, we should harrow the surface, partly to incorporate the manure or ashes with the soil, and partly to give the grass plants a new start by a kind of root pruning Thus treated, land will retain all, or nearly all, of the fertilizing elements applied to it.

3d. Soap-boilers' ashes are greatly improved by mixing lime with them, say at the rate of one bushel of recently slaked lime to three or four of ashes. On soils that lack lime, equal parts of the two would be better. If we had the time at our disposal, we should apply the food of all plants to the earth where they are to grow only a few days before said plants were expected to begin to consume it. But circumstances vary all general rules indefinitely.

HORTICULTURAL.

Two apples have been received from Mr. Jos. Patterson, which Mr. P. states in a note originated in the orchard of his father, Amos Patterson, in the town of Union, Broome county, N. Y., and called in the neighborhood *Patterson Sweet*—supposed by Mr. B. to be the *Bailey Sweet*. This apple looks and tastes so much like the *Bailey Sweet*, that we dare not say it is not it. The specimens were too ripe to determine correctly.

(C. D. H., McLean, N. Y.) A correspondent has taken up the subject of the Grape Vine, and will probably give you the desired information. The *Fruit Garden* is $1.25—postage 20 cts., prepaid.

(B. J., Wilkins, Allegany county, Pennsylvania.) The tree of which you enclose a piece, is the *Taxus canadensis*, (American Yew.) It does not flourish in the sun. The *Cupressus thuyoides*, or white cedar, is different from the American arbor vitæ, although the latter is generally called white cedar in this part of the country. It is a lofty tree, with somewhat drooping branches, and foliage, in appearance, between the arbor vitæ and red cedar. It abounds in swampy grounds in New Jersey, and southward. We are much obliged for your drawings.

Apples.—(P. J. W., Fort Plain, N. Y.) No. 1 is *Rhode Island Greening*. No. 2, *Westfield Seek-no-further*. No. 3, don't know. The seeds will be sent out in time.

Buckthorn Hedge.—(E. C. S., Wauwatosa, Wis.) Prepare the ground as you would for wheat or corn, and get two year old plants at about $10 per 1000. Plant in a single row at six inches, or in a double row at twelve inches apart; about 1800 for 100 rods.

(J. G. C. L.) Leap year, as such, has nothing to do with the success of grafts. A silly old whim, sure enough!

(J. G., Mohawk, C. W.) We do not know where seeds of ornamental trees or shrubs can be found now. You might secure them by applying to the nurserymen or seedsmen in the summer.

(J. C., Creages, Md.) Get your trees early in the spring. Send your order to the nurserymen early.

(P. M., Sylvania, Pa.) We do not know where cherry and quince seeds can be obtained now. Such things should be ordered in season—cherry in June and quince in October. Seeds are generally saved but to order.

(J. P. H., Charlotte, Mich.) The insect you describe was the *rose bug* itself, and your mode of destruction was as good as any we know. They are destructive, voracious, and almost unconquerable.

Hot-Beds.—(J. P., Pomfret.) A hot-bed frame is simply four boards, or four pieces of one and a half or two inch plank, made into two sides and two ends, one side being twice as deep as the other, the ends sloping from back to front at such an angle as will throw off the rain and admit sufficient light. The ends and sides may be nailed together, or attached by hooks and staples; the latter is more convenient for taking them apart to lay away. Small rafters of two inch stuff, four inches wide, are placed across and let into the sides to support the sashes. The sashes are made of any desired width—three to four feet—and as long as the hot-bed is wide. It is made as a window sash, but without cross bars, except one in the middle to keep it firm. The lights are overlapped an eighth to a quarter of an inch. Use good, strong, clear glass, free from specks. The number of frames you want will depend upon the extent of your proposed operations. This you must determine. In forcing largely, it is well to have some pretty large frames. These you must get ready in season, and also plenty of stable manure. You can begin to force about the first to middle of March. We will endeavor to give you some further information, but would advise you to get Bridgeman's or Buist's treatise on Kitchen Gardening, as we can not go into all necessary detail short of writing a book. Get our volume for 1849.

(R. P. R., Chittenango.) We will endeavor to give you some facts respecting circulation of sap in plants. The egg plant is grown like a tomato. The plants should be started in a hot-bed before putting out in the garden. The fruit is cut in thin slices and fried in batter usually. There is no possible way of producing several sorts in one, but a number of varieties may be obtained on one tree by grafting or budding.

(J. D., Corydon, Ind.) Seeds of the arbor vitæ can not be obtained here now; the other seeds will be sent in season.

"Twenty best Pears for General Cultivation."—(D. E. G., Haviland Hollow.) We can heartily recommend you the following: *Summer*—Madelaine, Bloodgood, Dearborn's Seedling, Bartlett, Osband's Summer, Tyson. *Autumn*—Beurre Diel, Beurre Bosc, Belle Lucrative, Louise Bonne de Jersey, Duchesse d' Angouleme, Doyenne Boussock, White Doyenne, Swan's Orange, Seckel. *Winter*—Vicar of Winkfield, Winter Nelis, Lawrence, Princess St. Germain, Pound. If six varieties of summer pears are too many, strike out some and add Flemish Beauty and Van Mons Leon le Clerc.

(J. C., Indian Spring, Pa.) We can not, with out more information, venture a decided opinion in regard to the disease that affects your apples. It may be the soil is too cold, wet, or sour—may need draining, deep plowing, and manuring. It must be owing to the absence of necessary ingredients of food in the soil, or the presence of some injurious one. Lime can not cause it, for the apple is always finest on limed and limestone soils.

Osage Orange.—(J. D. A., The Square, N. Y.) You can get the seed through any of our seed stores, at about one dollar per quart. Soak it 24 hours in warm water before sowing. Sow in drills in light soil, and cover an inch deep. The plants are fit for a hedge row at one year old; and if well planted and taken care of, will make a good hedge in four years. It is a little tender. The Buckthorn is a hardy, rapid growing, fine hedge plant; but neither so thorny nor so elegant in foliage as the Osage Orange.

The Pawlonia.—(J. C., Mechanicsville, N. Y.) It is true that this tree can be propagated from pieces of the roots; but it does not follow from this that it will throw up suckers, unless special means be taken to produce them. We have never seen the appearance of a sucker, nor heard of any, and therefore we think apprehension on this point needless. The roots of almost any tree can be forced to emit suckers.

Onions.—Will some of our good kitchen gardeners answer the following:

If it would not be out of place, I should like to ask you a few questions in regard to the cultivation of onions. We have anxiously looked over the Farmer for information on this subject, but could find none. We wish to know when to plant to ensure a good size; what time to gather seedlings, as we use top onions, or sets; whether it is of use to break the tops to increase the bottoms. We have experimented three years, and have had no success in preserving seedlings through the winter. Please inform on this subject. S. A. D. F. K.—*Columbus.*

NEW AND IMPORTANT INSURANCE.

Northern New York Live Stock Insurance Co. Plattsburgh, N. Y.

INCORPORATED by the Legislature of the State of New York, July, 1851. Horses, Cattle, and all kinds of Live Stock insured against death, by the combined risks of Fire, Water, Accidents, Diseases, &c. Capital, 50,000.

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October 13, 1851.

This company is now organized and ready to receive applications for insurance. It is confidently believed that the owners of valuable animals will avail themselves of the advantages offered by this mode of protection.

The company have adopted such rates as, they believe, will furnish the means of paying ordinary losses, without resort to an assessment. But to guard against extraordinary losses, which may arise from contagious diseases or epidemics, it becomes necessary to require premium notes.

TO THE OWNERS OF HORSES AND LIVE STOCK.

Office of the Northern N. Y. Live Stock Ins. Co.,
PLATTSBURGH, August 16, 1851.

The Directors of the above Company, incorporated by the Legislature of the State of New York, at its extra session in July, 1851, respectfully request your attention to the following facts bearing on this subject.

1st. Value of this class of property. By the census of 1845, there were at that time in the State of New York, as follows:

Horses.	
One-half a million,	505,155
Neat Cattle.	
Over two millions,	2,072,320
Cows Milked.	
Nearly a million,	999,490
Sheep.	
Over six millions,	6,443,835
Hogs.	
Over one million and a half,	1,584,344

Without making any estimate of the value of this property, it is apparent that it is immense; extending to every inhabited spot, and essential to the health and comfort, almost to the existence of the inhabitants.

2d. These animals are subject to disease and accident. It has been asserted as a fact which can not be disputed, that the aggregate loss upon this species of property is *greater* than the losses by fire; at all events, it is a fact undoubted that the annual loss is very great, and the owner is left unprovided with any means of security against the hazard incident to this description of property.

3d. The knowledge of this risk is one of the leading hindrances to improvement in the breed of that useful and noble animal, the horse.

Men of capital are slow to invest large sums in a valuable animal, whose loss they must every day risk, to the amount often from five hundred to a thousand dollars, in every valuable breeding horse.

With the ample security to be afforded by sound Insurance Companies, the investment of capital in horses and live stock may be made as safe and safer than the carrying of freight on the seas and inland waters. Marine Insurance has rendered this last business steady and profitable; while without it, it would want the confidence which that branch of business now commands. The absence of this Insurance in the case of live stock is universally felt.

While the owner of real estate can command half or two-thirds of its value, when needed for an emergency; while the owner of the ship, "the plaything of the wind and waves," may obtain any reasonable advance: the owner of equally valuable property, invested in horses and cattle, can not obtain a dollar. The only exception being fat cattle destined for market. In vain does the owner of the horse appeal to his industry or usefulness. The answer is, that his property is liable to disease and accident, and that as security it is utterly worthless.

4th. The Insurance principle comes in, and does for him what life Insurance has done for the young beginner in trade, taking away the risk arising from the uncertainty of life.

It will do for him what Fire Insurance has done for the owner of personal property; placing him nearly on a level with the owner of real estate.

It will do for him what Marine Insurance has done for property "afloat," taking away or equalizing the risk of the elements.

5th. In short, if Life, Fire, and Marine Insurance, are proper and expedient; so is Live Stock Insurance: as they all rest on the same foundation — that of mutual help and assistance.

Your aid is respectfully solicited in behalf of the Company, the first chartered in this State for this object. The Directors intend it shall be prudently conducted, and one which shall deserve the confidence of the public.

Our Capital is fifty thousand dollars; and when estimated in view of the liabilities we seek to assume, will be found as large or larger, in proportion, than the usual capital of Fire, Life, and Marine Insurance Companies; those Companies often taking single risks of from three to five thousand dollars, while in our case no single risk will exceed four hundred dollars.

Terms of Insurance will be furnished by Agents of the Company.

New York Agricultural Warehouse

A. B. ALLEN & CO.,
189 & 191 *Water Street, New York.*

PLOWS of a great variety of patterns and different sizes calculated for sward and stubble land, wet meadows and recently drained swamps, where roots abound. Among these plows, also, are the deep-breaking-up, flat-furrow, lap-furrow, self-sharpening, side-hill, double mould-board, corn, cotton, cane, rice, and subsoil, with single or double wings.

HARROWS—Triangular, Square, Geddes, and Scotch.

ROLLERS with iron sections one foot long, and of different diameters. These can be arranged on an iron shaft of any width.

CULTIVATORS of upwards of twenty different kinds, steel tooth and cast iron.

SEED SOWERS of six different kinds and prices.

HORSE POWERS—Endless chain and circular, of wood or cast iron.

THRESHERS, with or without Separators.

GRAIN MILLS of cast iron, and burr stone, to work either by hand, horse, or water power.

CORN SHELLERS, single and double, large and small, cylindrical to work by hand, or otherwise.

STRAW CUTTERS with spiral, straight, or circular knives.

VEGETABLE CUTTERS, for turnips and other roots, together with a great variety of all other Agricultural and Horticultural Implements kept in the United States, such as hoes, shovels, spades, rakes, manure and hay forks, grain cradles, scythes, snaths, &c., &c.

CASTINGS of all kinds, for plows, cotton gins, and rollers.

WAGONS and CARTS, for horse, ox, or hand.

STEAM ENGINES, for farm and other purposes.

Our Implements occupy three large stores, and we believe they make up the largest and most complete assortment in America. In addition, we have a machine shop employing upwards of one hundred men, where any articles in our line can be made to order.

A. B. ALLEN & CO.,
Feb., 1851. 189 and 191 Water St., New York.

York County Farm for Sale.

ANY gentleman wishing to remove South, can be accommodated with a good Farm of 250 acres, about 70 acres open, level, abundance of marl, orchard and small dwelling, very healthy, and good water. The residue is well set in Pine, Oak, and Chestnut, and one mile from a bold creek. Any gentleman wishing to purchase, will communicate with the subscriber. EDWARD R. COKE.
Feb. 1852.—2-2t* Burnt Ordinary, James City Co., Va.

Wants a Situation,

A GERMAN GARDENER, who has been several years in this country, and is well acquainted with the different branches of his profession. Would prefer a place where there is some glass. He is a young married man with a small family, and can be well recommended.

Address, post-paid, CHARLES MEERIO, care of Dr. SPENCE, Starkey, Yates co., N. Y.
Feb., 1852.—2-1t*

Prices of Agricultural Products at the Principal Markets in the United States.—Jan'y 15, 1852.

	New York.	Boston.	Rochester.	Chicago.	Cincinnati.	Pittsburgh.
Beef, per 100 lbs.	$4.25 a 5.75	$7.00 a 8.00	$3.50 a 4.25	$4.00 a 4.50		
do mess, per bbl.	8.25 11.00	11.00 12.50	11.00 11.50	8.00		
Pork, per 100 lbs.			5.00 5.50	3.75 4.00		
do mess, per bbl.	14.87½ 15.00	15.75 16.00	15.00 15.50	16.00 16.50	$12.50	
Lard, per lb.	9 9¼	9¼ 11	7 9	8 9	6¼ a 7¼	
Butter, do	14 23	16 20	12 16	8 10	8 11	$0.15 a 18
Cheese, do	6½ 7¼	7 8	5½ 6	5 7	6¼ 7	6¼
Flour, per bbl.	4.81 5.25	4.50 6.00	4.00 4.50	3.00 4.00	3.05 3.35	3.00 3.12½
Wheat, per bush.	1.08 1.12½		87½ 90	50 65	57 60	60
Corn, shelled, per bu.	67 68	68 68	50 53	28 30	25 30	
Rye, do	77 78	75 77	69 70		50 55	40
Oats, do	40 45	40 45	31	17 19	22 23	31
Barley, do	77 80	95 1.00	67 70		55 60	46
Clover seed, do	8¼a9 pr. lb.	9 a 12 per lb.	4.50 5.00	12½ per lb.	4.50 4.75	5.25
Timothy seed, do			1.50 2.50	2.25	1.50 2.50	
Flax seed, do	1.35 1.37½	1.60 1.65	1.25 1.50	75	1.00	
Hay, per ton	15.00 16.00	14.00 15.00	8.00 11.00		11.00 13.50	
Wool, per lb.	30 40		30 40	30 40	26 35	
Wood, hard, per cord		6.50 7.00	4.00 4.50	3.00 5.00		

CONTENTS OF THIS NUMBER.

Agricultural Chemistry,..... 41
The Limited Duration of Varieties of Plants,..... 44
Culture of Flax,..... 45
Experience in Potato Culture,..... 46
"Rural Homes"—A Suburban Cottage,..... 47
Plan of a Farm-House,..... 50
Butter Making,..... 51
Value of Barn-Yard Manure,..... 52
Hess Barley,..... 52
Growing Flax with Barley,..... 52
SHEEP HUSBANDRY—Vermont and the West,..... 53
Breeds of Sheep, and their Comparative Value,..... 54
ENGLISH AGRICULTURAL NEWS—Reaping Machines in England; American Plows in England,..... 66
EDITORS' TABLE—Poultry Profits; Large Hog; Planting Potatoes in the Fall; Trying Lard; Inquiries and Answers; Notices; &c.,..... 67

HORTICULTURAL DEPARTMENT.

The Fuchsia,..... 58
Descriptions of new Pears,..... 63
The Bradshaw Plum,..... 64
The Bailey Spice Apple,..... 64
Work for the Month; A National Park; Fruits from France; The Season; The North American Sylva,. 65

ILLUSTRATIONS.

Suburban Cottage,..... 47
Ground Plan of Suburban Cottage,..... 48
Chamber Plan of Suburban Cottage,..... 49
Rustic Flower Stand,..... 50
Plan of a Farm-House,..... 50
Hess Barley,..... 52
Fibre of Merino Wool,..... 54
Fibre of South Down Wool,..... 54
Fibre of Leicester Wool,..... 54
Merino Sheep,..... 56
South Down Sheep,..... 57
Leicester Sheep,..... 57
Fuchsia, Pearl of England,..... 59
do. Magnificent,..... 60
do. Serratifolia,..... 61
do. Globosa,..... 62
Pear, Bonne des Zees,..... 63
do. Beurre Dercuincan,..... 63
Rat-proof Granary,..... 68

Farm for Sale.

THE subscriber offers for sale her farm, situated in the county of Onondaga, one mile west of the village of Jordan, on the Erie canal, and adjoining the Syracuse and Rochester Railroad. Said farm consists of one hundred acres, and is well adapted for grazing. There is about ten acres of muck, on which carrots, beets, &c., grow to an enormous size. Also, on the farm, and in immediate vicinity, are large deposits of marl. Eight acres wood land. Good dwelling house, barn, and fruit.

For further particulars, inquire of Z. P. MASON, Jordan, Onondaga Co., N. Y. TRIPHENA AUSTIN.

Feb., 1852.—2-1t*

Wanted,

A FARM containing about 50 acres clear new land—some limestone bottom preferred—with about 40 acres maple or oak. Also a good house and out-buildings. Must be in a good farming district and convenient to churches and schools. Would be preferred on the New York or New Jersey shores, with good facilities for carriage to market by railroad or steamboat.

Address letters, post-paid, to RICE LAWLON, care of JOHN SPRING, 16 East street, Boston, Mass., to which immediate attention will be paid; also stating description of place and price.

Farm for Sale.

THE subscriber will sell his farm, containing 234 acres, pleasantly situated on a main road, 2½ miles west from the village of Attica, through which place the Buffalo and Rochester, and Buffalo and New York City Railroads pass. Said farm is well adapted to a dairy or stock. House 26 by 46, well finished and nearly new. Good barns and outhouses. Two large orchards with plenty of grafted fruit. I will sell for $25 per acre; payments made easy. Ill health induces me to sell. L. PECK.

Attica, Wyoming co., N. Y., Feb., 1852.—2-1t*

Prouty & Mears' Center Draught Plows.

A LARGE assortment can be found at the State Agricultural Warehouse, No. 25 Cliff street, New York.

Feb., 1852.—2-1t A. LONGETT.

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VOLUME XIII, FOR 1852.

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